

Bang & Olufsen

Beolab LCS 9000

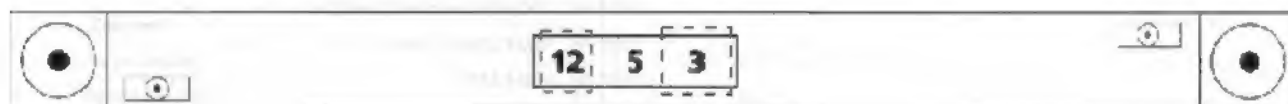
Type 1601, 1602, 1603, 1604, 1605



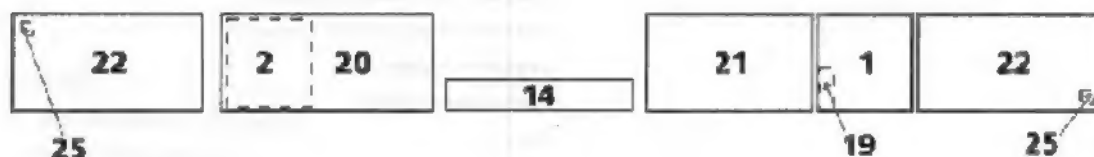
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Seen from the front



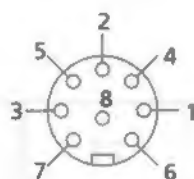
Seen from the back

Power amplifiers

Rated power woofer	35W, 8Ω
Rated power tweeter	35W, 8Ω
Amplifier signal-to-noise ratio	> 80 dBA, 1W/8Ω
Signal-to-noise ratio	> 74 dBA, full volume
Frequency range	20 - 20,000 Hz +0 -1 dB
Harmonic distortion	< 0.1%
Total harmonic distortion	< 0.3% IHF
Cross talk	50 dB
Active crossover network	24 dB/octave Linkwitz/Riley
Low frequency equalization	+12 dB/60 - 250 Hz, ABL
High pass filter	30 dB/octave, 60 Hz

Connections

Mains	Cable included, 3 meters
	230V AC, 1601 EU
	240V AC, 1602 GB and 1605 AUS
	120V AC, 1603 USA - CDN
	100V AC, 1604 JAP

Master Control Link

8-pin DIN 45326 socket
1 signal, left channel (yellow)
2 N.C. (pink)
3 ground, left channel (grey)
4 signal, right channel (green)
5 ground, right channel (brown)
6 datalink (white)
7 data shield (shield)
8 N.C.

Dimensions

Total dimensions W x H x D (on wall)	111 x 9.5 x 11 cm
Power consumption, operation	95 watts (230V)
Power consumption, stand-by	1.1 watt, 'Dot' in display
	3 watt, 'Watch' in display
Weight	10 kg, without stand

Optional accessories

Beolink 1000	Type 1501, 1502 Italy
Stand	Type 1606
Wall plate	3901162
Cable cover	2560276 (10 pieces x 2.5m)
MCL cable	Available from dealer
Converter junction box	7219071

SPECIFICATION GUIDELINES FOR SERVICE USE

Beolab LCS 9000		Type 1601 (EU), 1602 (GB), 1603 (USA-CDN), 1604 (JAP), 1605 (AUS)
Concept		
X-tra room product		Active stereo loudspeaker with control circuitry, stand-by relay and IR receiver
Operation		
Local operation		Two sensi-touch fields with restricted operation (Mute/on/off/ listen-in, timer on/off)
Remote operation		Beolink 1000, one-way (optional extra)
Status feedback		Red 8 char. LED dot matrix display, (program source, program or track number, record, clock) Red LED 1.8mm (Timer indication)
Independent sound control		Volume, balance, bass, treble, loudness
Compatability		Masters with MCL (BM5500 or later)
Cabinet		
Rear finish		Polished aluminium, high gloss
Front cloth		Black
Center front		Black aluminium/plastic
Wall bracket		Grey plastic
Placement		
Wall		Wall bracket included
Stand		Polished aluminium (optional extra)
Acoustics		
Cabinet net volume per channel		0.8 litres
Woofer in each channel		9 cm - 3½"
Tweeter in each channel		1.8 cm - 3/4"
Crossover frequency		3000 Hz
Bass reflex principle		Port
Electronics		
Overload protection		Yes
Volumecontrol		+12 dB in relation to central room
Bass/treble equalization		±12 dB, 100Hz/20kHz
System data		
Principle		Active, Bass reflex, 2-way, bi-amp, stereo
Frequency response		70 - 22.000 Hz +4 -8 dB, half field
Sound Pressure Level		95 dB weighted noise (IEC 268-5), stereo, half room, 3m
Harmonic distortion 250 - 1,000Hz		<10% 94 dB SPL, 1m
Harmonic distortion 1,000 - 5,000Hz		<3% 94 dB SPL, 1m
Input impedance, MCL		> 47kΩ
Input sensitivity		2.85V one channel, 1m half field
Minimum distance to TV		25cm

Power
Rated p
Rated p
Amplifi
Signal-to
Frequen
Harmon
Total ha
Cross ta
Active c
Low fre
High pa

Connect
Mains

Master

Dimens
Total di
Power c
Power c

Weight

Option
Beolink
Stand
Wall pla
Cable co
MCL cal
Conver

Subject

BRIEF OPERATION GUIDE

The Local Control System 9000 gives you the possibility to play any source you like in a central Bang & Olufsen system and listen to it in the room with the LCS 9000.

Furthermore it is possible to control the daily playback functions in the central system via the LCS 9000 - using the Beolink 1000 terminal.

The LCS 9000 and the central system must be interconnected by a Beolink installation.

CLOSE-UP OPERATION



Timer Play control

Cuts-in the speakers together with the Timer Play function in the central audio system.

- Touch the Timer key and the display shows the current setting.
- Touch the Timer key again to change the setting.

TIMER	NO TIMER BANG & OLUFSEN	MUTE •
TIMER •	TIMER BANG & OLUFSEN	MUTE •

Sound control

Listen-in on the source currently playing in the central system, or switch on and listen to the audio source that was last playing.

- Touch MUTE • to listen-in or switch on.
- Touch MUTE • briefly to mute (switch off).
- Touch and hold the MUTE • key to switch off both the LCS 9000 and the central system.

TIMER •	RADIO 16 BANG & OLUFSEN	MUTE •
TIMER •	MUTED BANG & OLUFSEN	MUTE •
TIMER •	22:35 • BANG & OLUFSEN	MUTE •

Note:

Timer Play and clock functions must be supported by the central audio system.

Display setting

There are three options available.

- Keep a finger on Timer key.
- Touch the MUTE key briefly.
- Touch the MUTE key again.
- Touch the MUTE key again.

TIMER •	CLOCK 2 BANG & OLUFSEN	MUTE •
TIMER •	NO CLOCK BANG & OLUFSEN	MUTE •
TIMER •	CLOCK 1 BANG & OLUFSEN	MUTE •

CLOCK 2

In stand-by the display will show the time and the stand-by light. The time indication remains on when the LCS 9000 is playing, but the display gives a brief status whenever you operate the LCS 9000. This is the factory setup.

NO CLOCK

In stand-by the display will show a : and the stand-by light. The display will give a permanent status when the LCS 9000 is playing. A setup for central systems without clock functions.

CLOCK 1

In stand-by the display will show the time and the stand-by light. When the LCS 9000 is playing, the display will give a permanent status.

EXPLANATION OF DIAGRAM

Type numbers of transistors and ICs are indicated on the diagrams. If the position is followed by an asterisk the spare part number must always be used because the component in question has been specially selected, e.g. TR102*.

Component print and coordinate system

The largest PCBs have component prints and a coordinate system on both the print and the component side.
On the diagrams every component has a coordinate number. This indicates in which coordinate on the PCB the component is situated. The coordinate numbers are written in smaller print types than the position numbers.

Control Circuit

In certain control circuits the active mode is indicated by a function term or by an abbreviation. This may be e.g. ST.BY.= low in the stand-by mode or ST.BY.= high in the stand-by mode.

Wiring Connections

The wiring connections on the diagrams are assembled in 'bundles'. The individual wires are provided with one of the following codes:

INTERNAL CONNECTION ON ONE DIAGRAM PAGE



Internal connections on a diagram page are indicated by a number. The bend of the wire indicates in which direction the other end of the wire is found.

CONNECTION TO ANOTHER DIAGRAM PAGE



A connection to another diagram page is indicated by a number as well as by a letter of the diagram to which the connection leads.

Supply Voltages

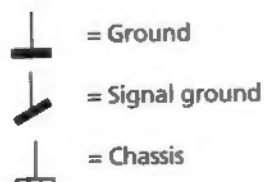
All supply voltages in the diagrams are indicated by an arrow and a voltage indication.

Example:

"7 CON.". This means that the supply voltage in question goes to 7 different places on the diagram page in question (7 CON.= 7 connections).

Ground Symbols

Three different ground symbols are used in the set.



SYMBOL OF SAFETY COMPONENTS

When replacing components with this symbol, components with identical part numbers must be used. The new component must be mounted in the same way as the one replaced.

MEASURING CONDITIONS

All DC voltages have been measured in relation to ground with a voltmeter with an input impedance of 10 Mohms.

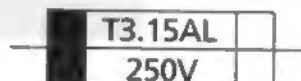
The DC voltages are stated in volts (V), e.g. 0.7V.

All oscillograms and AC voltages have been measured in relation to ground with an oscilloscope or a voltmeter with an input resistance of 1Mohm.

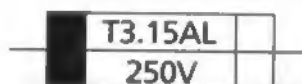
AC voltages are stated in millivolts (mV), e.g. 660mV.

Explanation of the fuse symbols used in the set

Replace with the same type 3.15 ampere 250 volts slow acting fuse.

**Explanation des symboles de fusible utilisés dans l'appareil**

Remplacer par un fusible retardé de même type et de 3.15 ampères 250 volts.



REMOTE OPERATION

Switch on any source from the central Bang & Olufsen system (audio and video), and control the playback functions.

Switch on the radio	RADIO	LCS 9000 display:	RADIO 3
Start the CD player	CD		CD 1
Start the record player	PHONO		PHONO
Start the tape recorder	A.TAPE		A.TAPE 1
Switch on TV sound	TV		TV 1
Switch on satellite TV sound	SAT		SAT 12
Switch on video tape recorder	V.TAPE		V.TAPE 1
Switch on a secondary video tape recorder	SHIFT V.TAPE		V.TP2
Switch on a secondary CD player	SHIFT CD		CD2
Switch on a CDV player	SHIFT SAT		CDV
Switch on a secondary tape recorder	SHIFT A.TAPE		A.TP2
To play the other side on tape recorder	SHIFT REVERSE		A.TAPE

Step through programs /tracks or raises/lowers the level	▲ ▼		
Key in exact program/ track no.	1 9		RADIO 19
Pause the audio or video tape rec., CD player or record player	STOP		V.TAPE <>
Stop the source	STOP PAUSE		V.TAPE <>
	then		
Rewind/searches backwards/balance left	<<		V.TAPE <<
	or		
Fast forward/searches forwards/balance right	>>		V.TAPE >>
Resume playing	PLAY		V.TAPE 1

Raises/lowers the volume	▲ ▼		VOL 36
Mute or listen-in/ switch on	MUTE		MUTED
Volume, balance, bass, treble, loudness	BALANCE		BALANCE
Reset sound level	SHIFT MUTE		VOL 30
Store sound level	SOUND STORE		LORE
Press briefly to switch off LCS 9000	•		
Keep pressing for 2 seconds to switch off the central system too	• >2 sec.		

Options

The LCS 9000 can be preprogrammed for three different setups (options).

Option 2

To be used for a setup with the central system in one room and the local system in another (factory setting).

Option 4

To be used if the local system is installed in the same room as the central system.

To start playing a source, press

LINK
then
RADIO **CD** **V.TAPE** **PHONO**
or
LINK **AV**
then
TV **SAT** **V.TAPE**

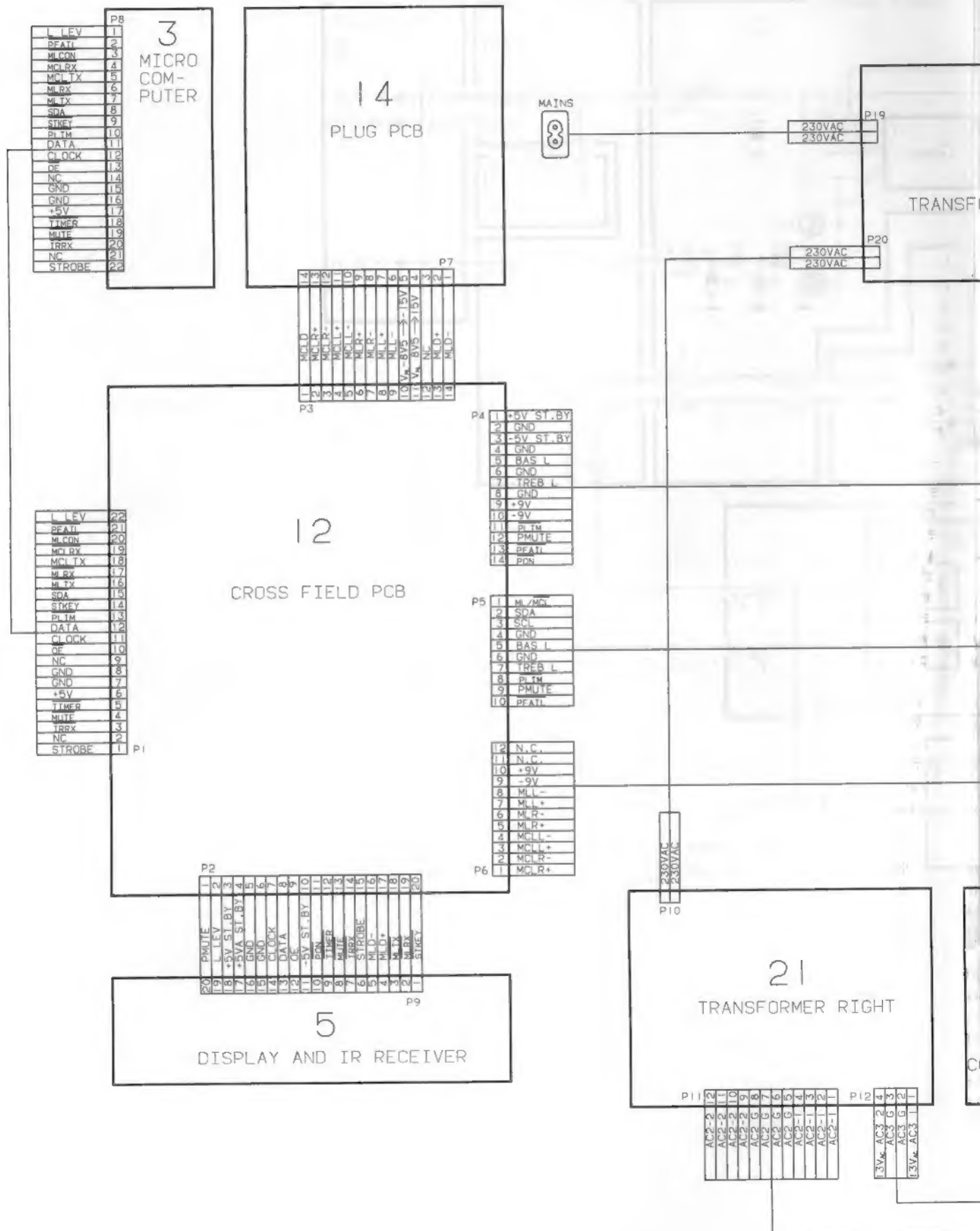
Option 0

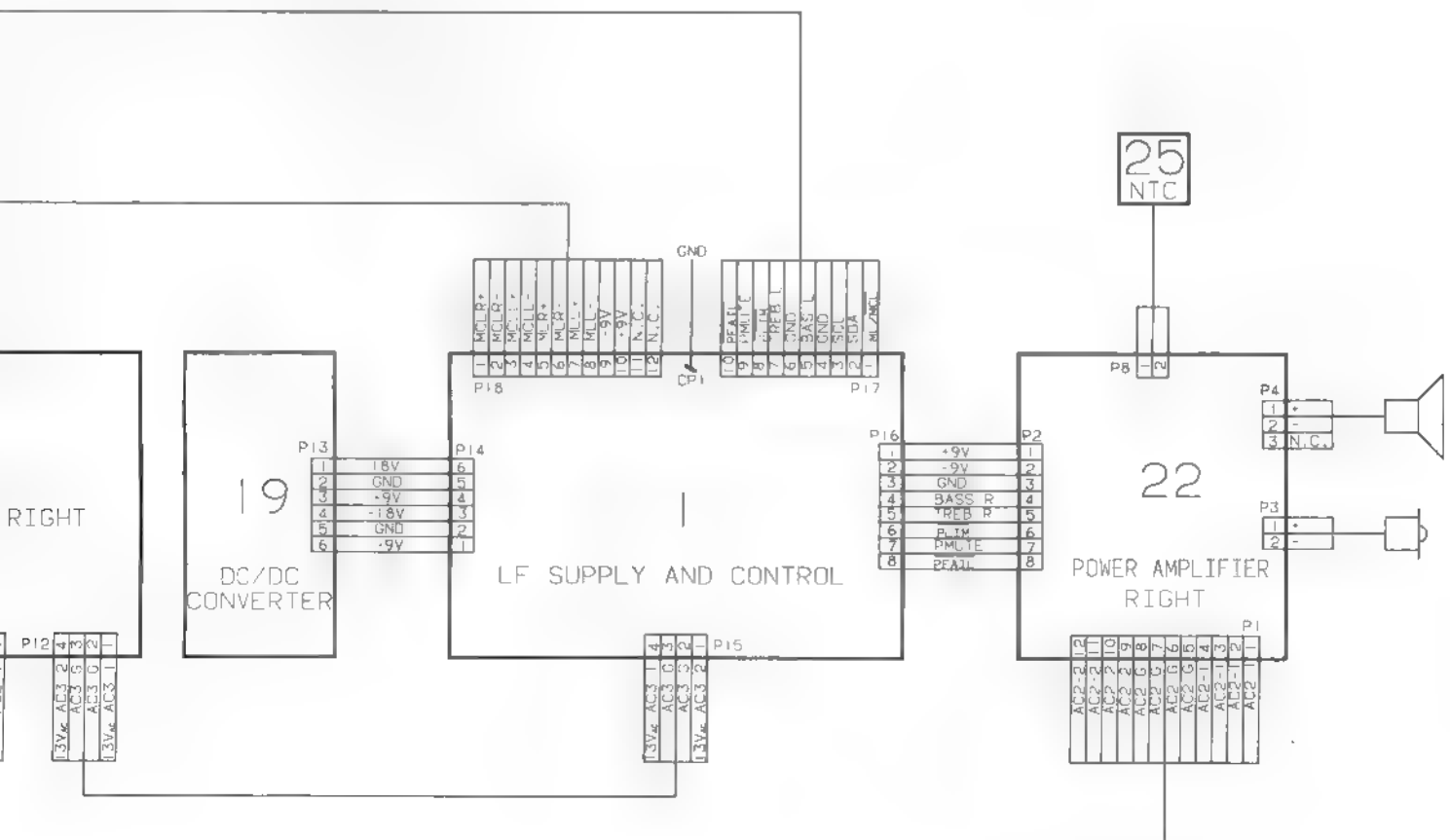
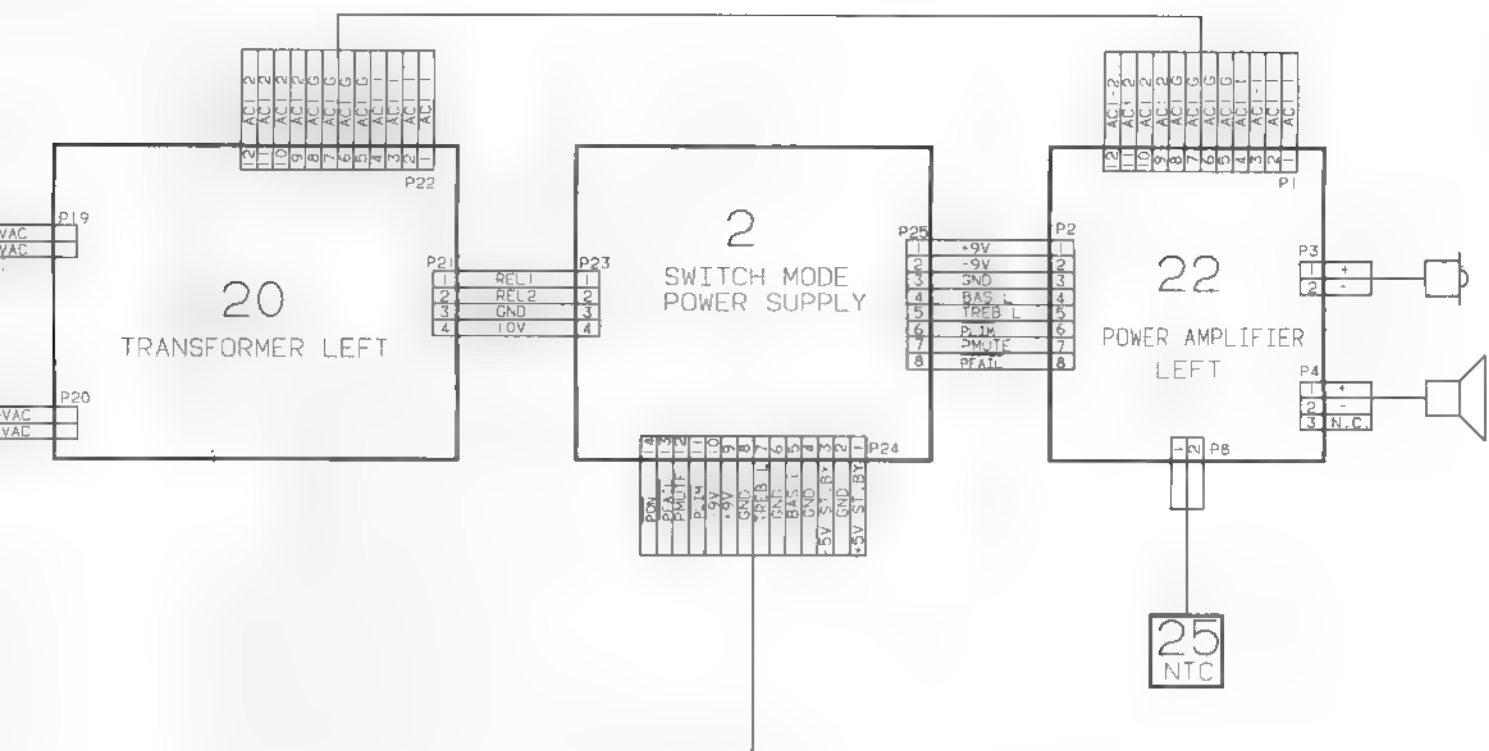
Disables the remote control operation of the local system.

If both the central and local system is in stand-by mode:

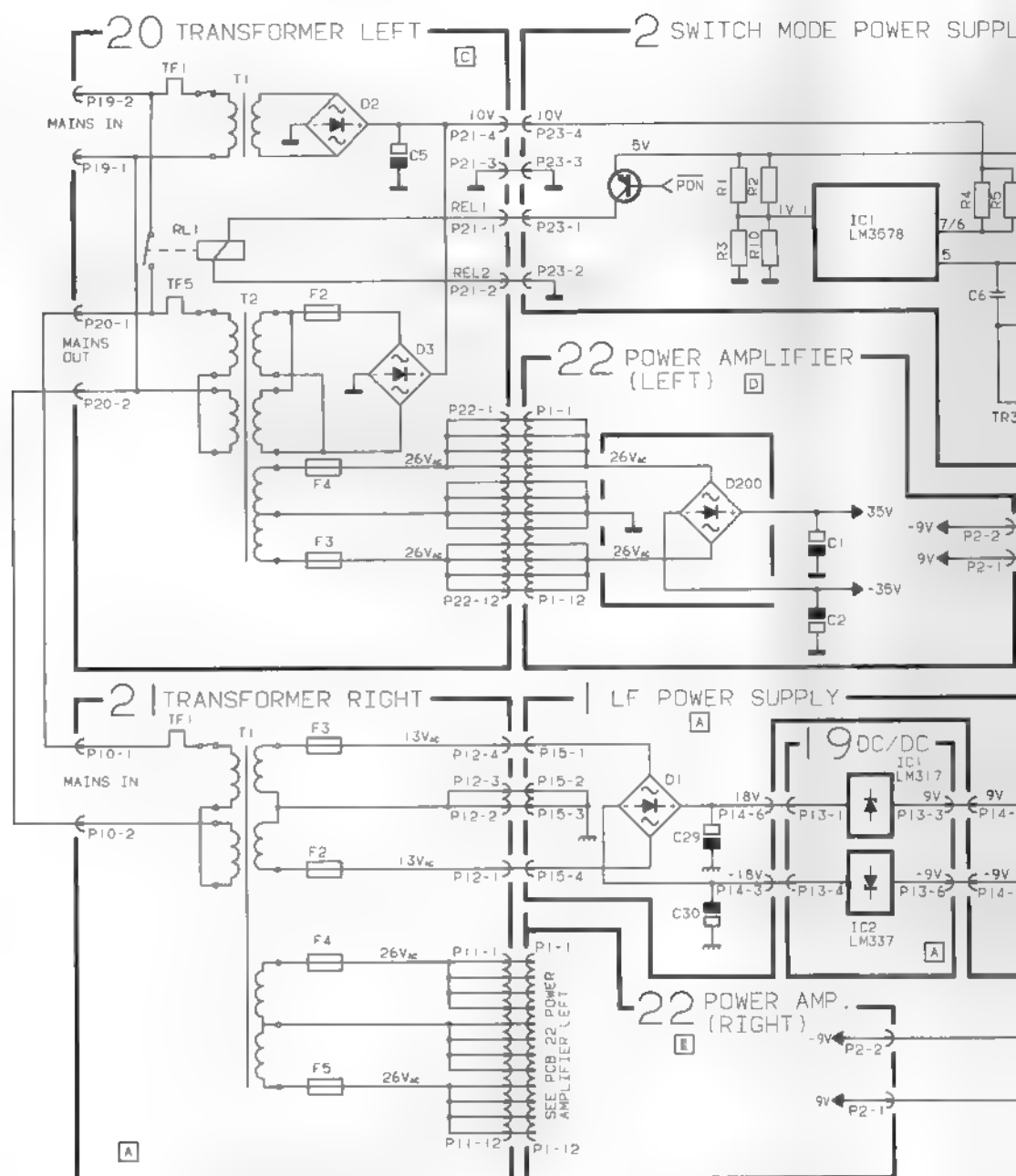
- Press **LINK**, the option number, and then **LORE**.

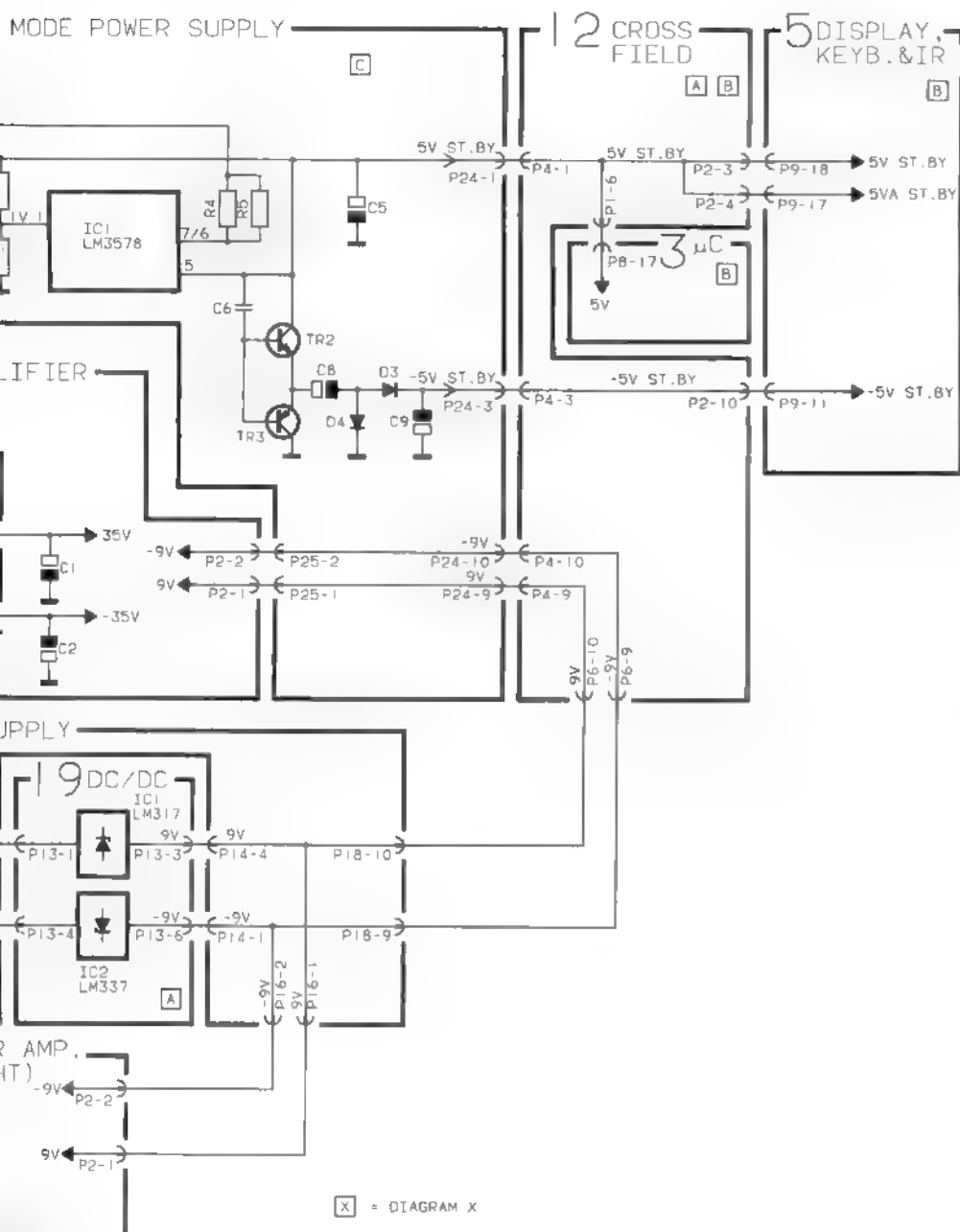
WIRING DIAGRAM



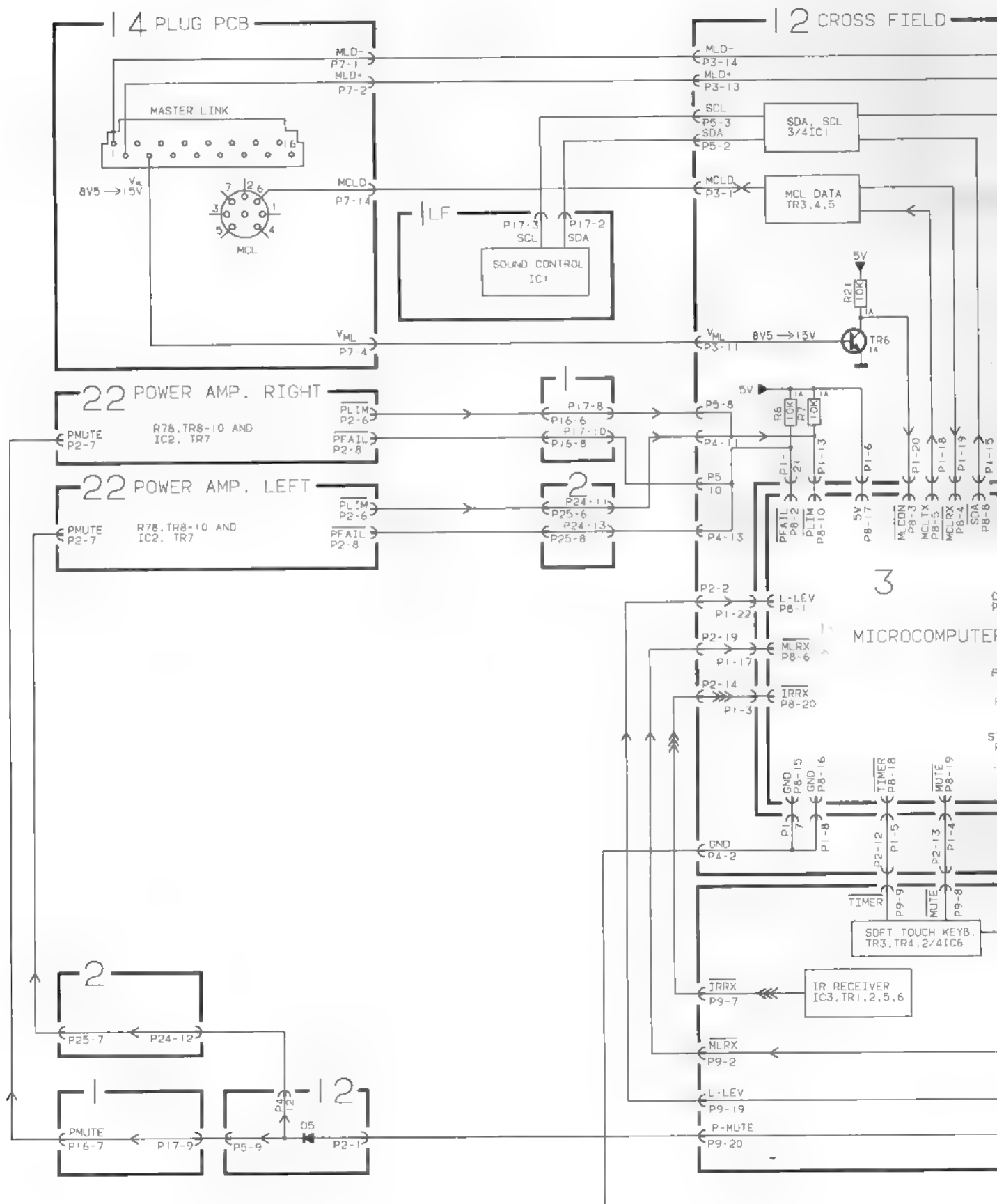


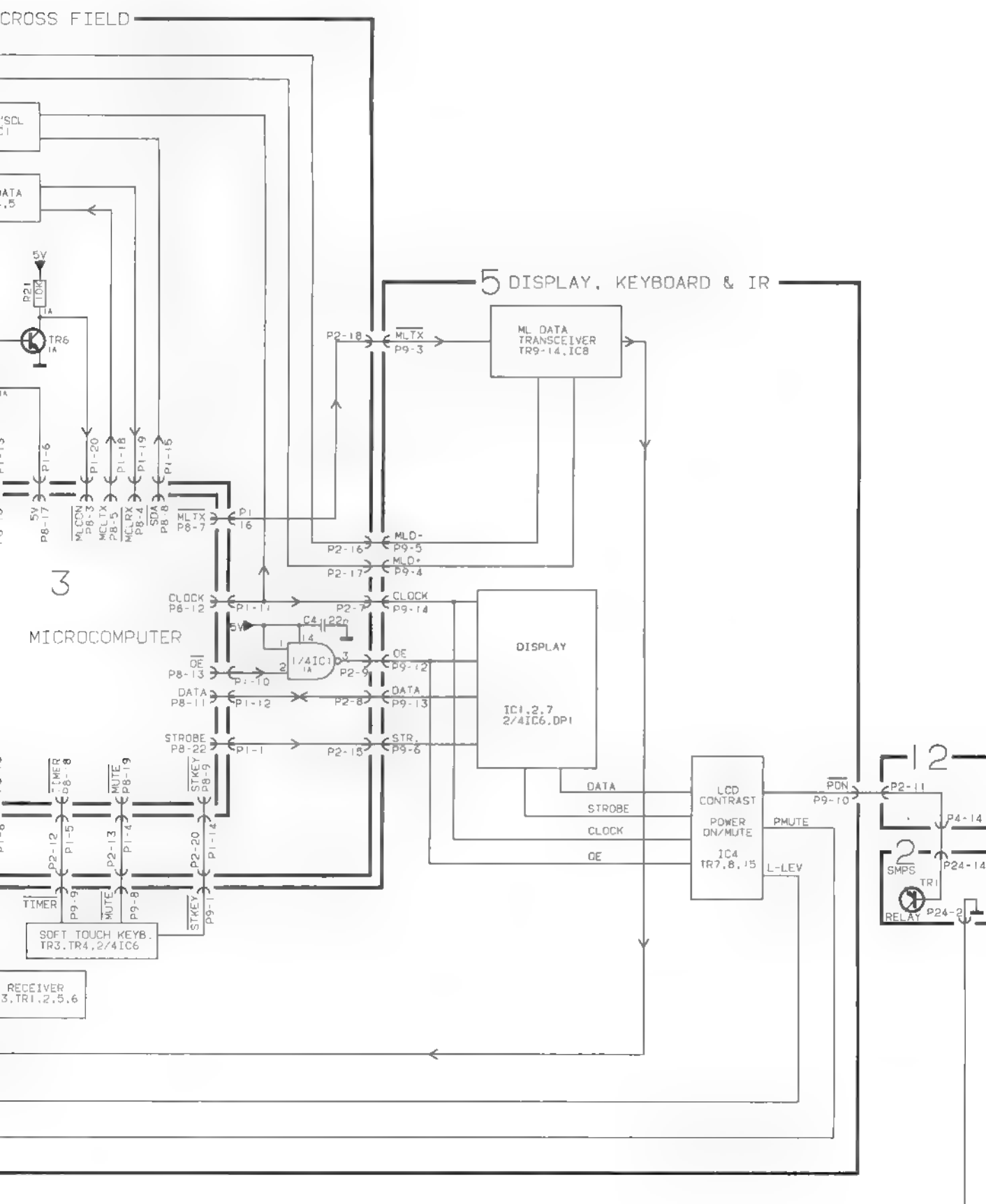
BLOCK DIAGRAM FOR POWER SUPPLY



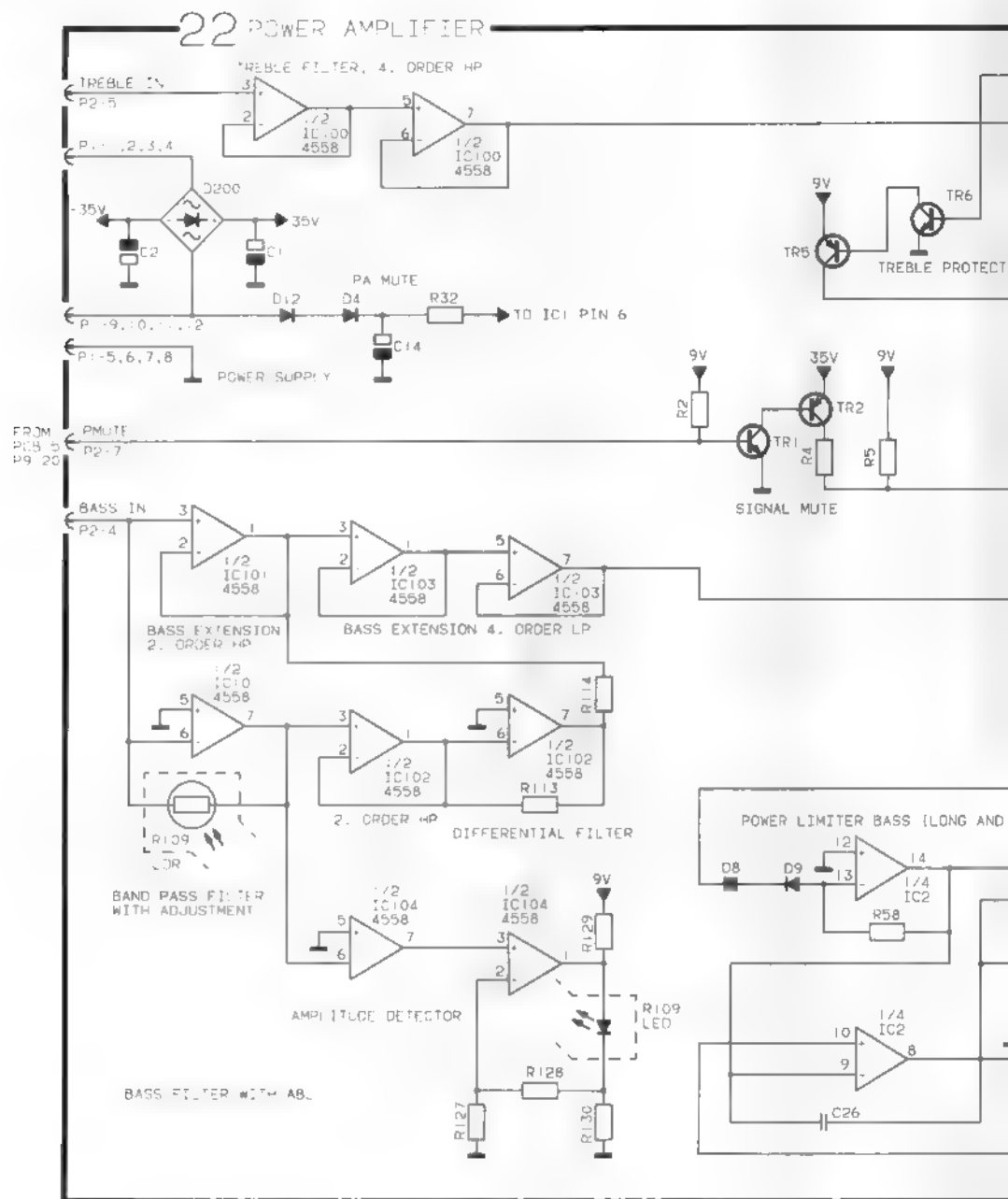


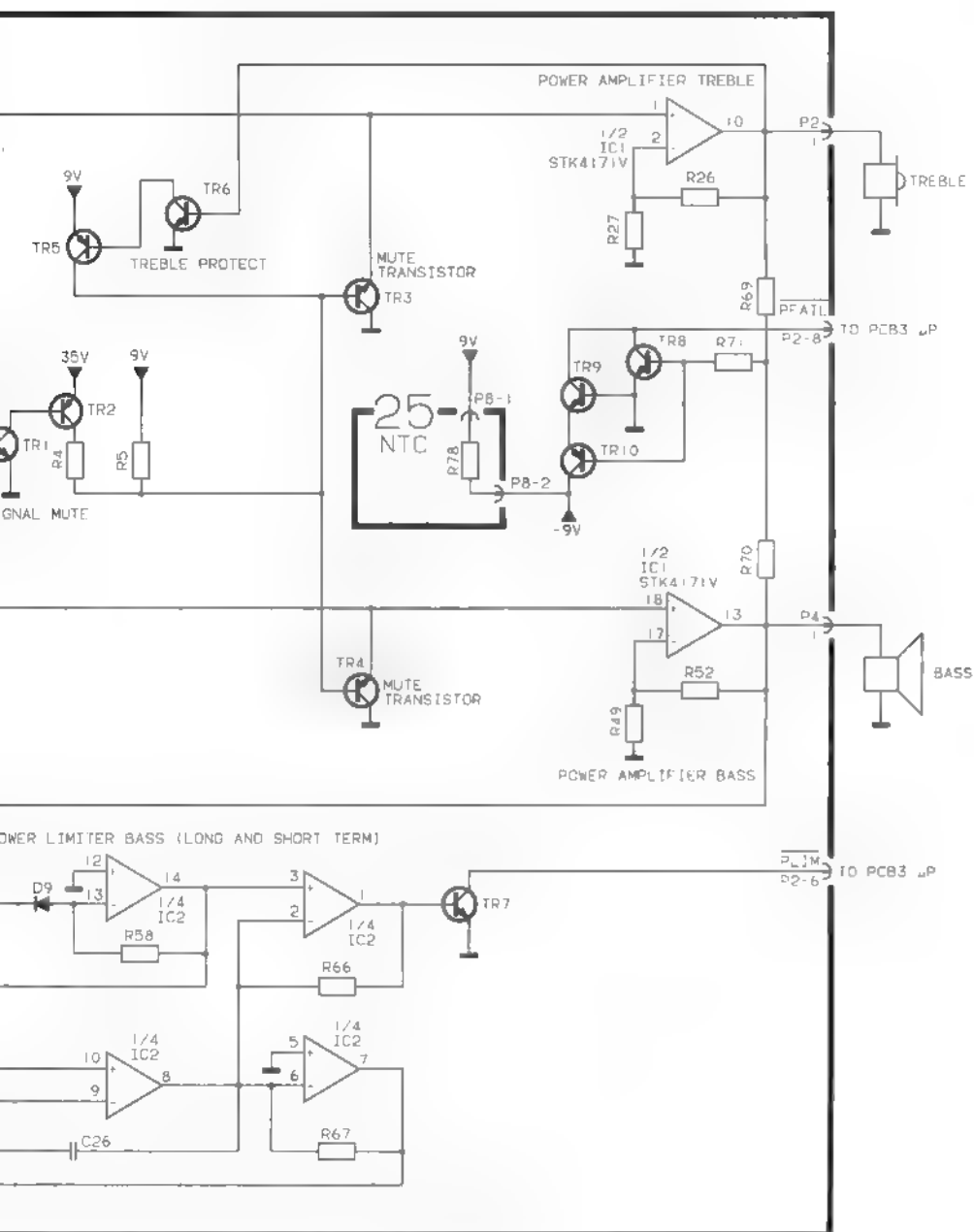
BLOCK DIAGRAM FOR SYSTEM CONTROL

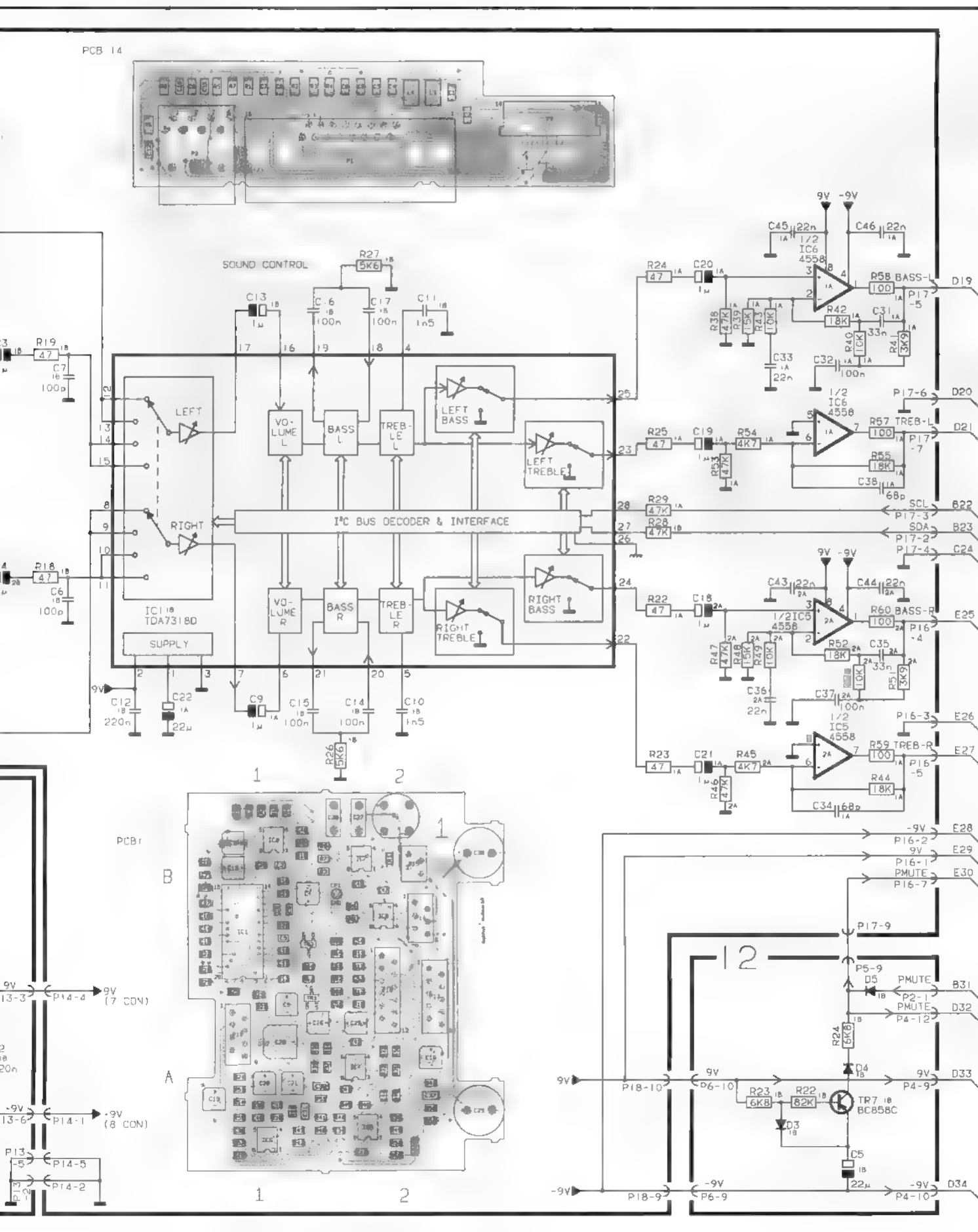




BLOCK DIAGRAM FOR POWER AMPLIFIER







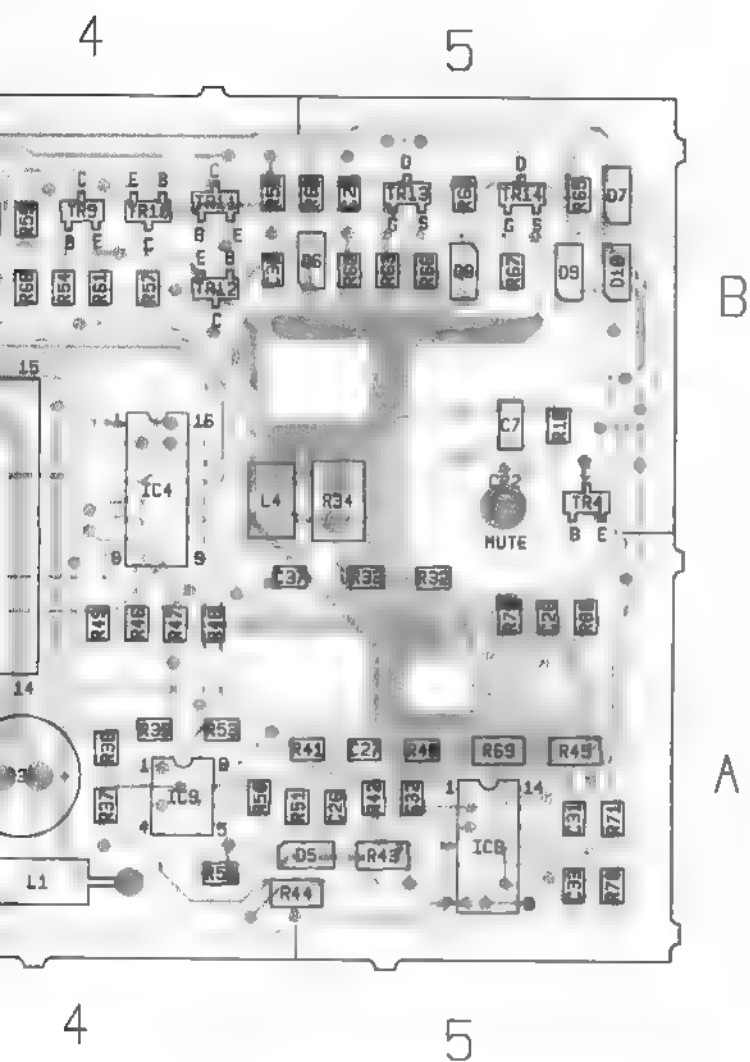
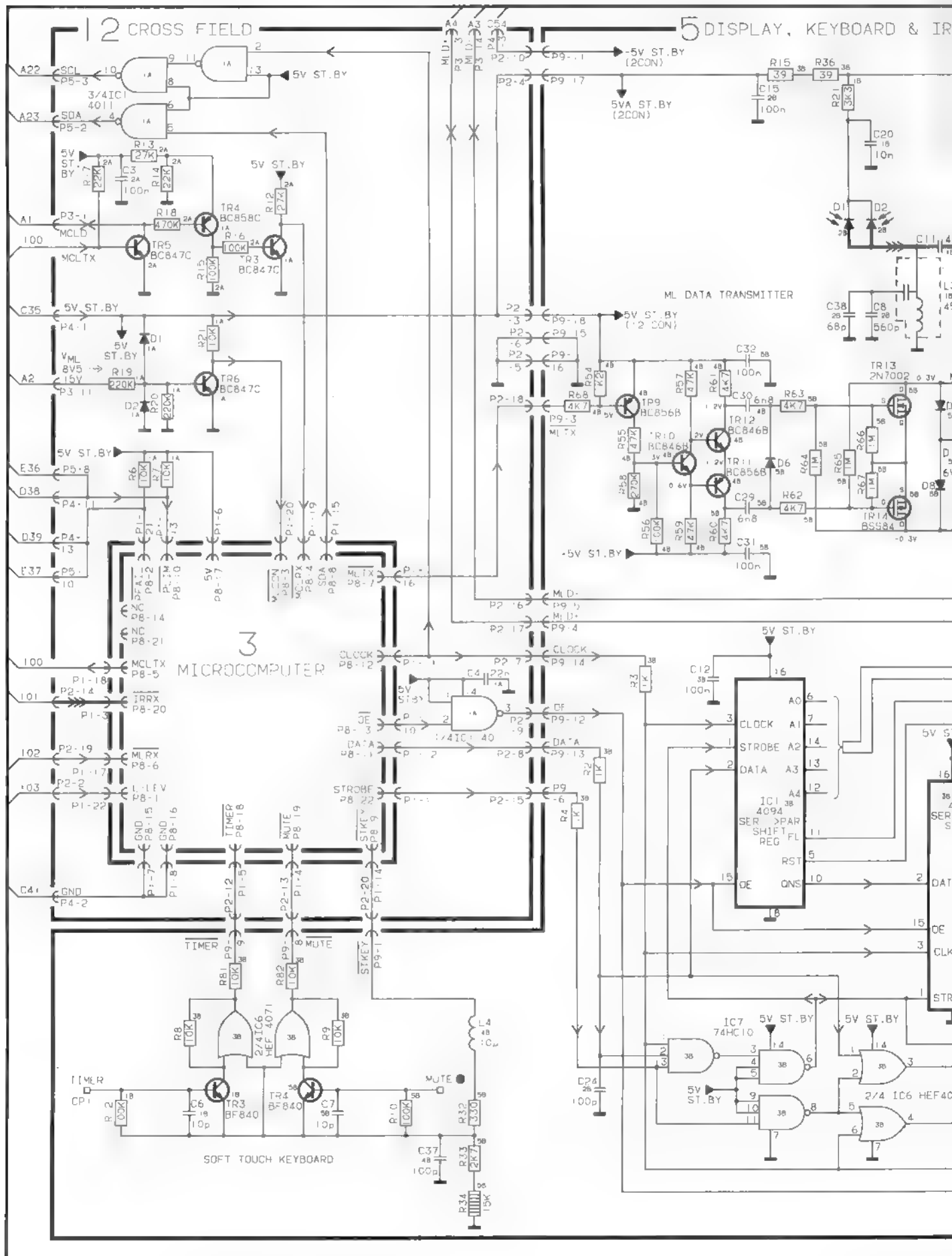


DIAGRAM B MICROCOMPUTER, DISPLAY/ KEYBOARD & IR RECEIVER AND CROSS FIELD



Y. KEYBOARD & IR RECEIVER

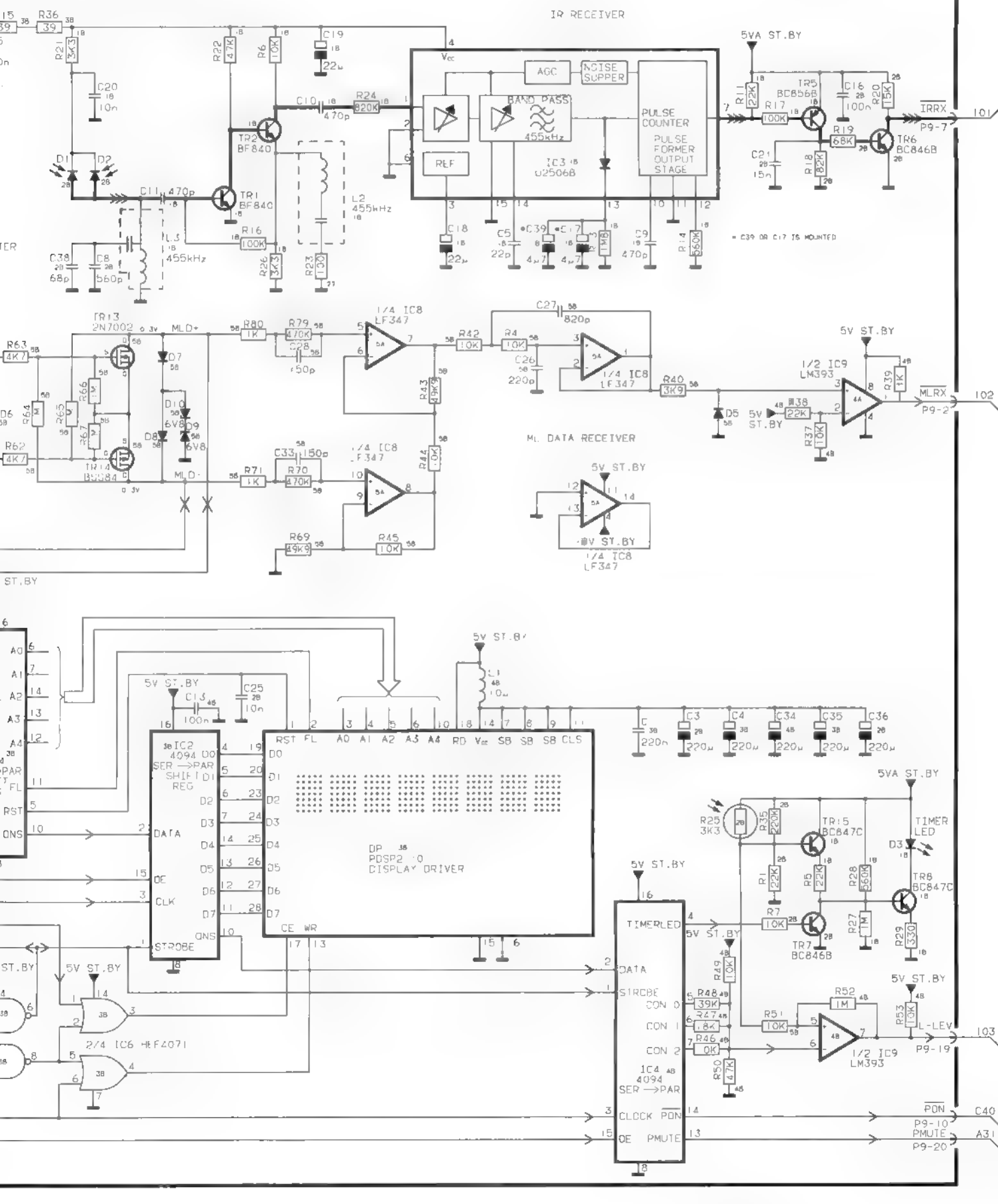
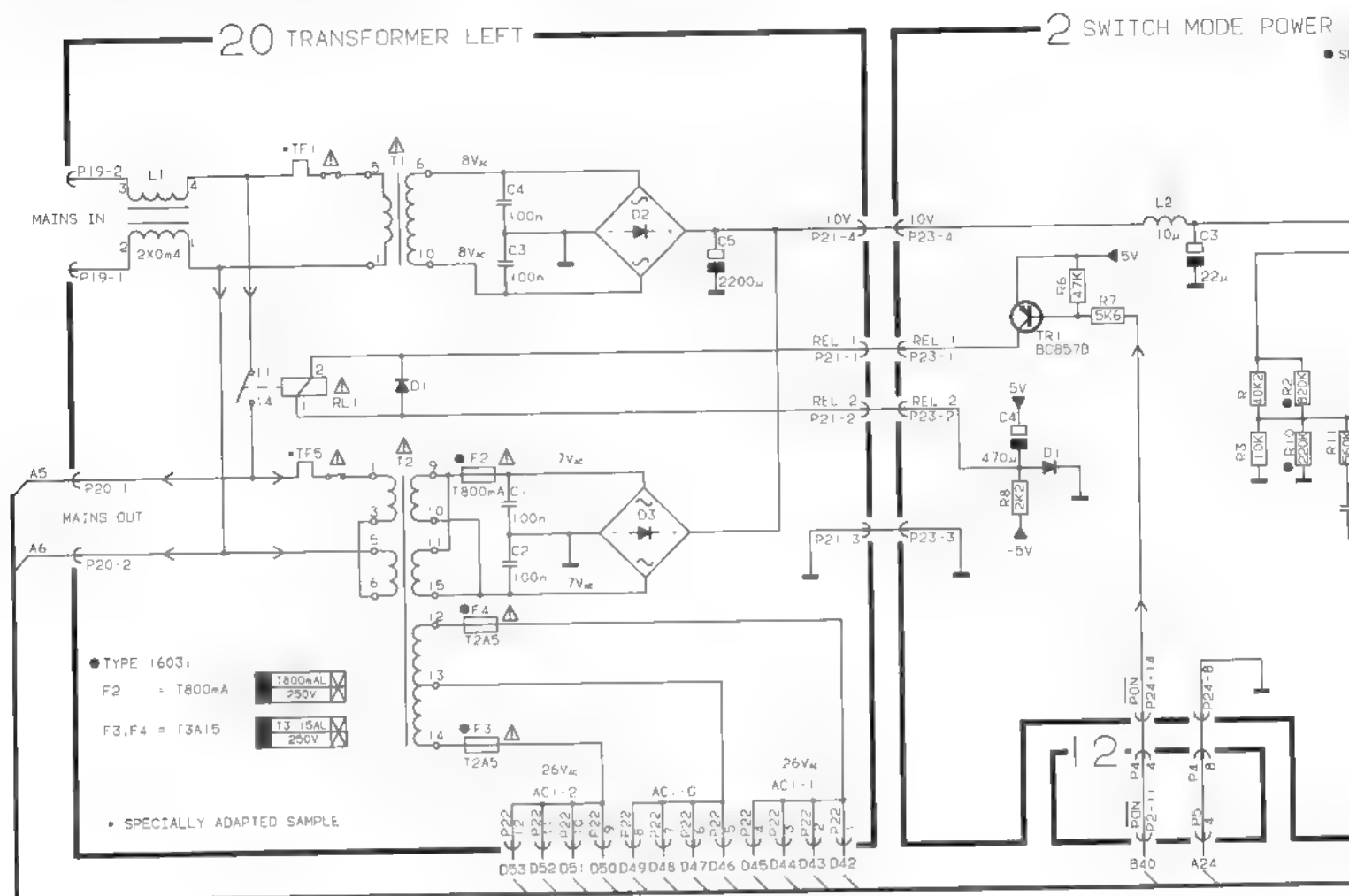
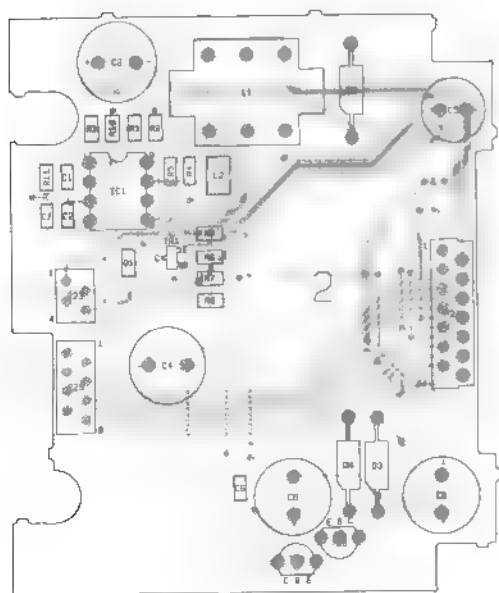


DIAGRAM C TRANSFORMER LEFT AND SWITCH MODE POWER SUPPLY

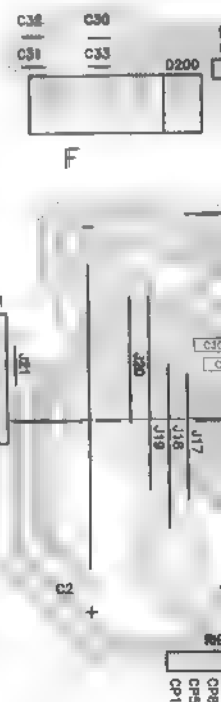


PCB 2, Switch Mode Power Supply

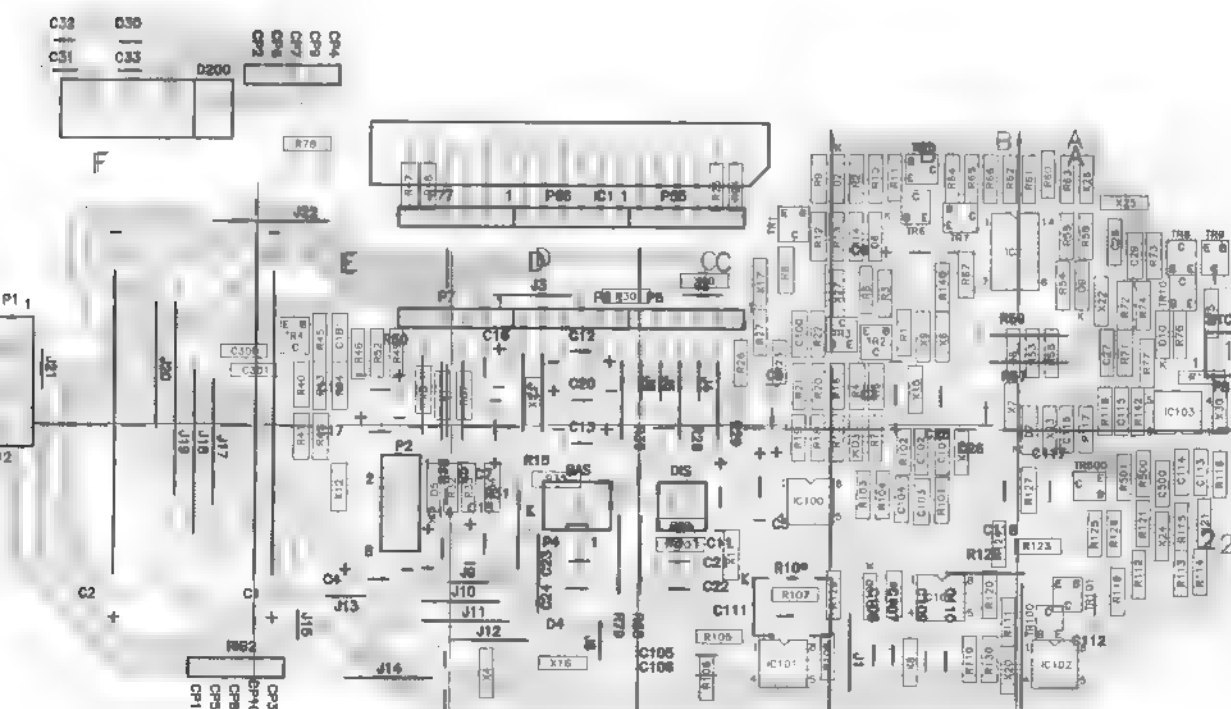
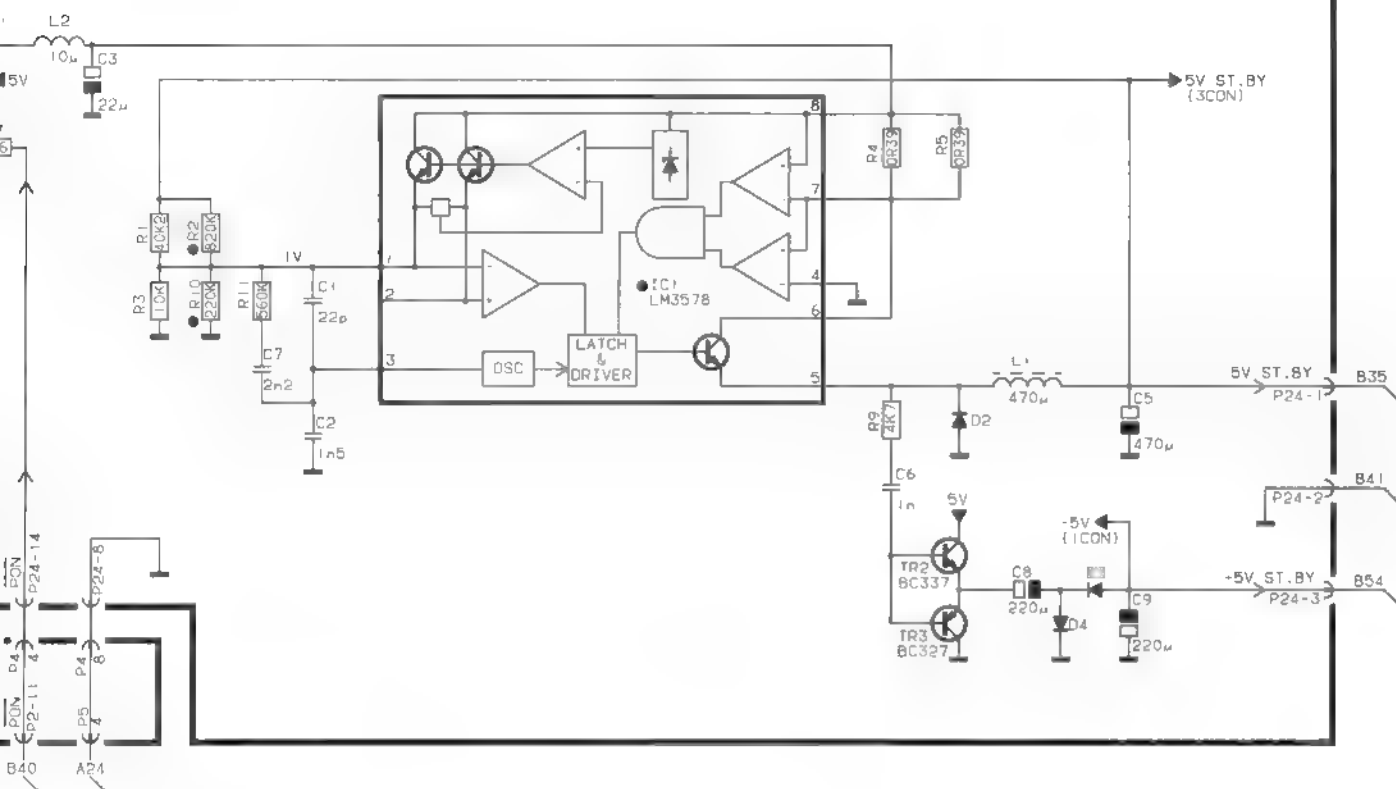


PCB 22, Power Amplifier left/right

X = jumper

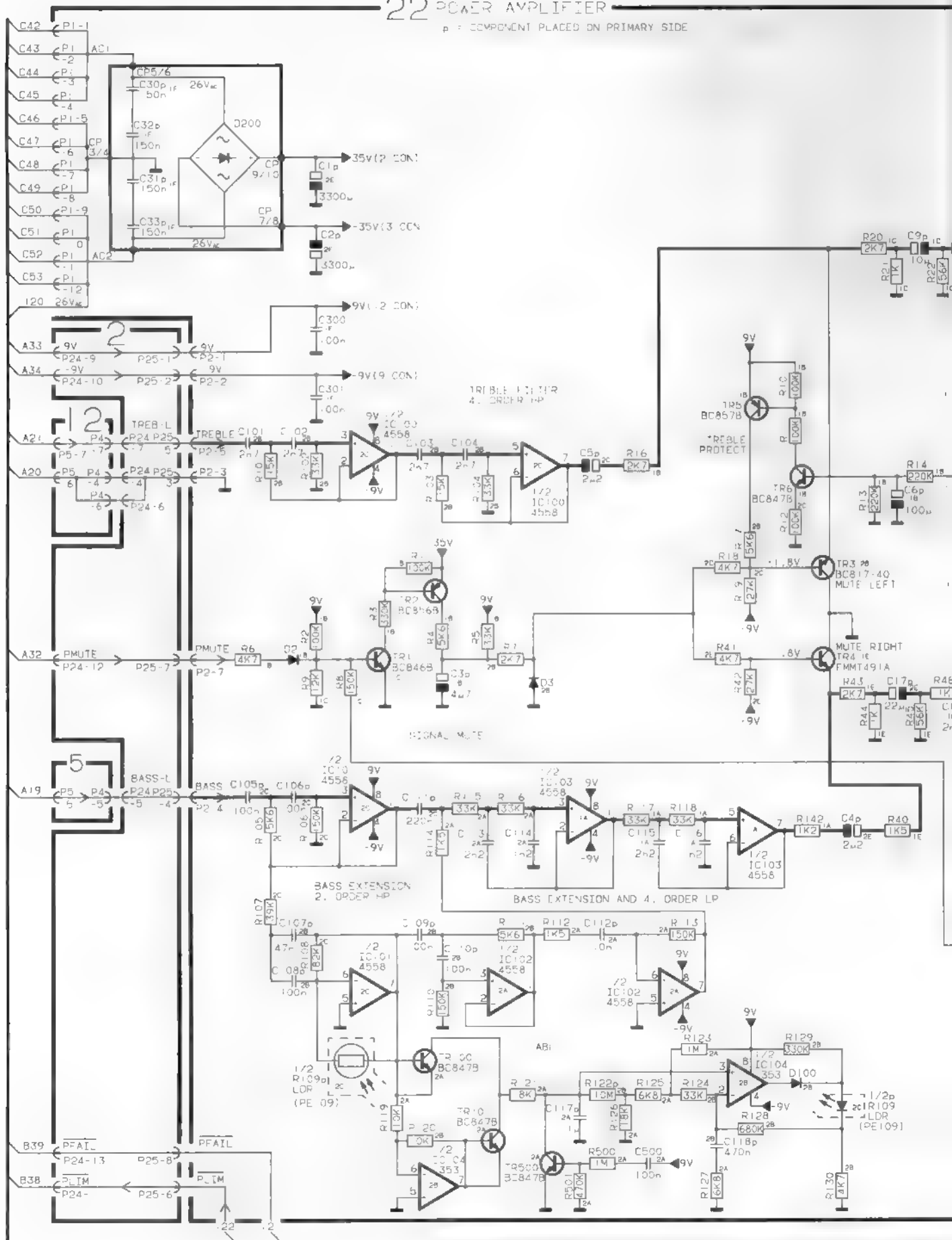


● SEE 5V ADJUSTMENT, SECTION 5



• 22 POWER AMPLIFIER

p = COMPONENT PLACED ON PRIMARY SIDE



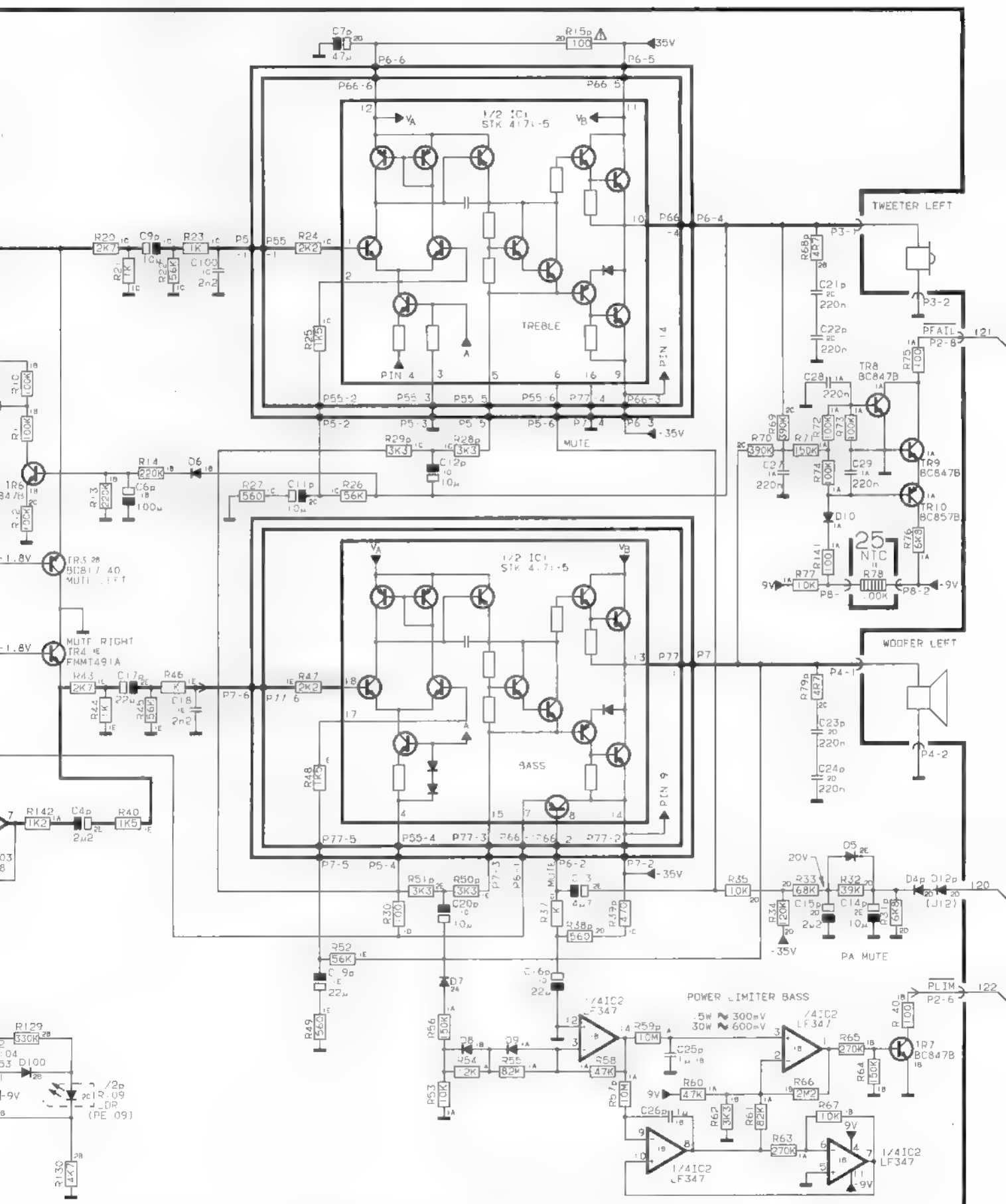
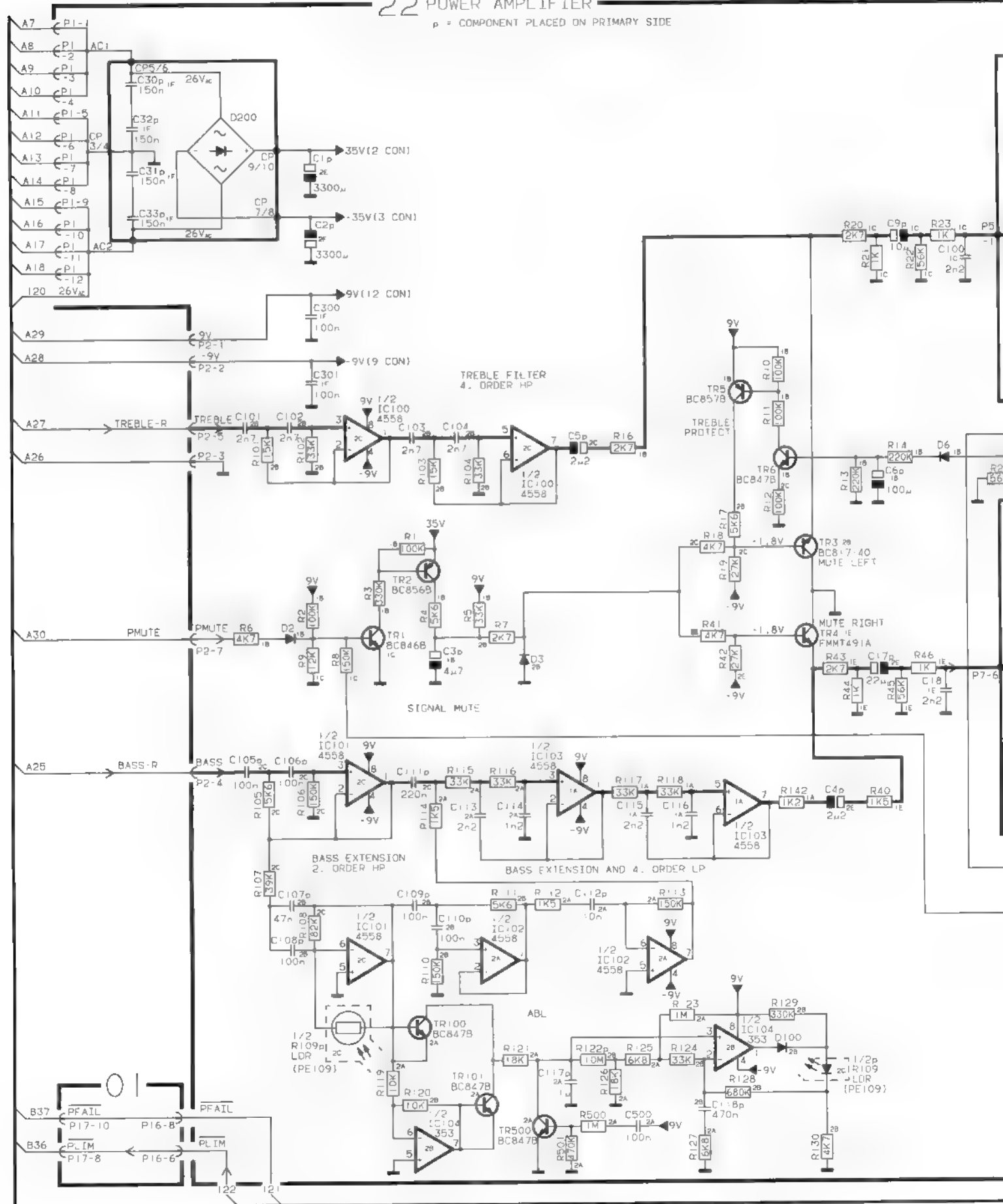
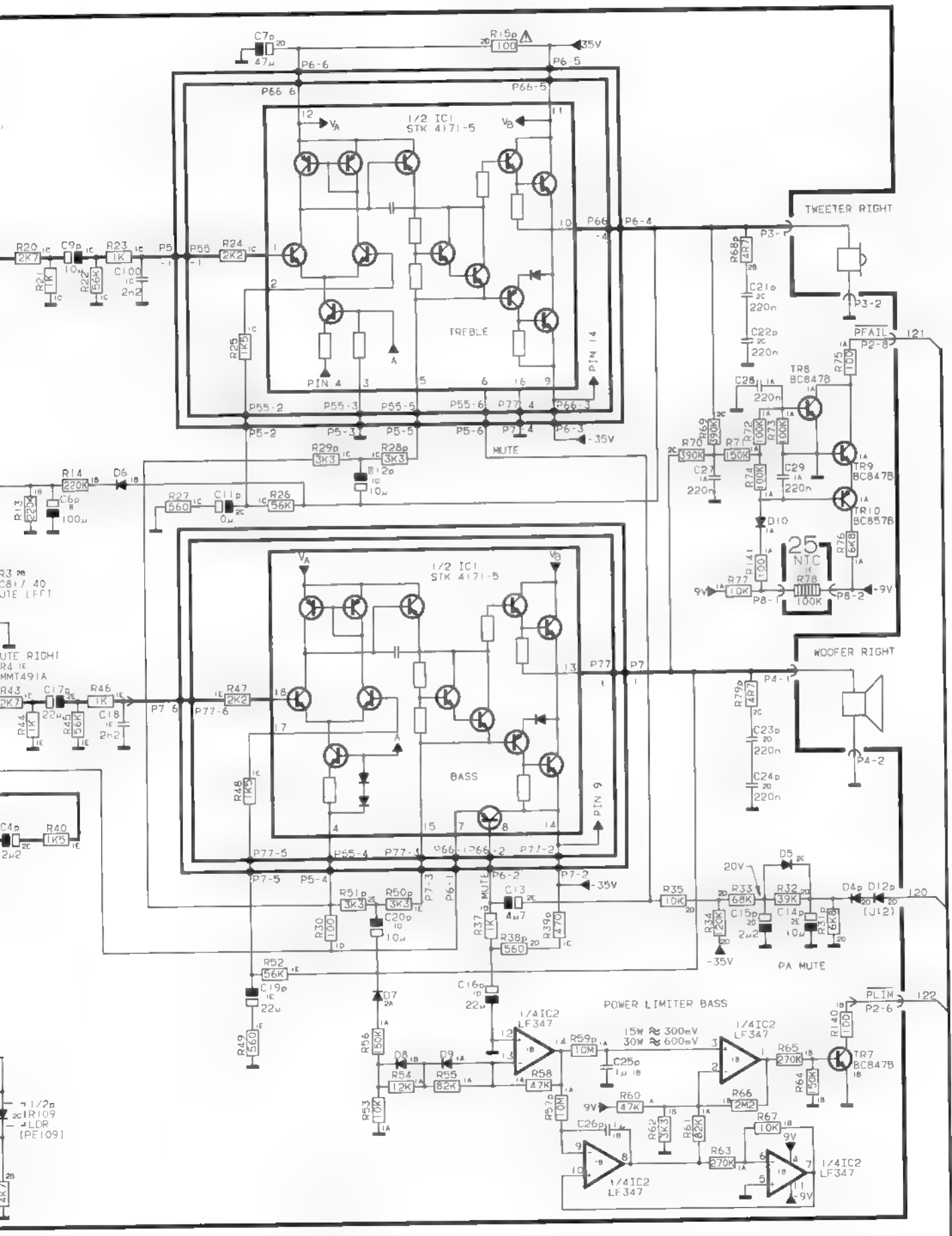


DIAGRAM E POWER AMPLIFIER RIGHT

22 POWER AMPLIFIER

p = COMPONENT PLACED ON PRIMARY SIDE





LIST OF ELECTRICAL PARTS

18	51	57	150	151	209	250	261

Resistors not referred to are standard, see page 3-5

Δ Indicates that static electricity may destroy the component.

* Specially adapted sample.

**PCB 01, 8006068,
LF Supply and Control**

IC1	8342238	151	TDA7318D	IC4-	8341022	150	4558
IC2	8341022	150	4558	IC8			

TR1-	8320758	057	PMBF4392
TR2			

D1	8300466	261	W02G
----	---------	-----	------

R4	5012218	11.8kΩ	1%	1/10W	R15-	5012216	5.9kΩ	1%	1/10W
R7-	5012218	11.8kΩ	1%	1/10W	R17				
R8	5012218	11.8kΩ	1%	1/10W	R30-	5012217	150kΩ	1%	1/10W
R9	5012216	5.9kΩ	1%	1/10W	R31				
					R34-	5012217	150kΩ	1%	1/10W
					R35				

C1-	4000404	22pF	5%	50V	C27-	4130230	100nF	20%	63V
C2					C28				
C3-	4201257	1μF	20%	50V	C29-	4201256	470μF	20%	25V
C4					C30				
C5-	4000412	100pF	5%	50V	C31	4010175	33nF	10%	50V
C8					C32	4010220	100nF	10%	50V
C9	4201257	1μF	20%	50V	C33	4010315	22nF	10%	25V
C10-	4000457	1.5nF	10%	50V	C34	4000410	68pF	5%	50V
C11					C35	4010175	33nF	10%	50V
C12	4010314	220nF	-20+80%	25V	C36	4010315	22nF	10%	25V
C13	4201257	1μF	20%	50V	C37	4010220	100nF	10%	50V
C14-	4010316	100nF	10%	25V	C38	4000410	68pF	5%	50V
C17					C39-	4010272	22nF	-20+80%	50V
C18-	4201257	1μF	20%	50V	C47				
C21					C49	4010272	22nF	-20+80%	50V
C22	4201268	22μF	20%	35V	C51-	4000408	47pF	5%	50V
C25-	4201257	1μF	20%	50V	C54				
C26									

P14	7211054	Socket 6 pole	P17	7211056	Socket 10 pole
P15	7211053	Socket 4 pole	P18	7211057	Socket 12 pole
P16	7211055	Socket 11 pole			

**PCB 02, 8006073,
Switch Mode Power Supply**

IC1	8341225	151	LM3578
-----	---------	-----	--------

TR1	8320811	051	BC857B	TR3	8320552	018	BC327-25
TR2	8320507	018	BC337-25				

D1	8300606	250	LL4448	D3-	8300885	209	1N5817
D2	8300817	209	1N5819	D4			

R1	5012143	40.2kΩ	1%	1/8W	R4-	5021485	0.39Ω	5%	1/4W
R3	5011557	10kΩ	1%	1/8W	R5				

51	68	108	123	150	151	156	244
245	250						

Resistors not referred to are standard, see page 3-5

Δ Indicates that static electricity may destroy the component.

* Specially adapted sample.

C1	4000277	22pF 5% 50V	C6	4010132	1nF 10% 50V
C2	4000351	1.5nF 5% 50V	C7	4010170	2.2nF 10% 50V
C3	4201279	22μF 20% 50V	C8-	4200760	220μF -20+50% 16V
C4	4200600	470μF 20% 16V	C9		
C5	4201276	470μF 20% 10V			

L1	8020914	Coil 470μH 15%	L2	8020772	Coil 10μH 20%
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P23	7211053	Socket 4 pole	P25	7211055	Socket 8 pole
P24	7211079	Socket 14 pole			

PCB 03, 8006069, Microcomputer

PCB 05, 8006104, Display, Keyboard and IR Receiver

IC1-	8341025	156	4094	IC6	8341036	150	4071
IC2				IC7	8341577	150	74HC10
IC3	8341165	151	U2506B	IC8	8341231	150	LF347
IC4	8341025	156	4094	IC9	8341812	150	LM393

TR1-	8320740	051	8F840	TR9	8320753	051	8C856B
TR2				TR10	8320816	051	8C846B
TR3-	8320930	051	8F840	TR11	8320753	051	8C856B
TR4				TR12	8320816	051	8C846B
TR5	8320753	051	8C856B	TR13	8320856	068	2N7002
TR6-	8320816	051	8C846B	TR14	8320899	068	85584
TR7				TR15	8320936	051	8C847C
TR8	8320936	051	8C847C				

D1-	8330336	244	SFH235	D5-	8300482	250	LL4148
D2				D8			
D3	8330001	245	LED, red	D9-	8300520	250	Z6.8V 5%
				D10			

DP1	8330296	LED Display, 8 char., red
-----	---------	---------------------------

R13	5011712	1.8MΩ 5% 1/8W	R43	5011599	49.9kΩ 1% 1/8W
R25	5210006	LDR, 3.3kΩ 33%	R44-	5011557	10kΩ 1% 1/8W
R27	5011267	1MΩ 5% 1/8W	R45		
R34	5220017	NTC 15kΩ 10% 1/2W	R69	5011599	49.9kΩ 1% 1/8W

C1	4010314	220nF -20+80% 25V	C8	4000344	560pF 5% 50V
C3-	4200854	220μF 20% 10V	C9-	4000286	470pF 5% 50V
C4			C11		
C5	4000277	22pF 5% 50V	C12-	4010274	100nF -20+80% 25V
C6-	4000219	10pF +/-0.5pF 50V	C13		
C7			C15	4010166	100nF -20+80% 50V

C16	4010274	100nF -20+80% 25V	C29-	4010269	6.8nF 10% 50V
C17	4200960	4.7μF 20% 25V	C30		
C18	4200898	22μF 20% 6.3V	C31-	4010274	100nF -20+80% 25V
C19	4201165	22μF 20% 10V	C32		
C20	4010157	10nF 10% 50V	C33	4000414	150pF 5% 50V
C21	4010257	15nF 10% 50V	C34-	4200854	220μF 20% 10V
C24	4000241	100pF 5% 50V	C36		
C25	4010157	10nF 10% 50V	C37	4000412	100pF 5% 50V
C26	4000416	220pF 5% 50V	C38	4000410	68pF 5% 50V
C27	4000423	820pF 5% 50V	C39	4201278	4.7μF 20% 10V
C28	4000414	150pF 5% 50V			

L1	8020552	Coil 10μH 10%	L4	8020772	Coil 10μH 20%
L2-	8020744	Coil 455kHz			
L3					

P9	7210896	Socket 20 pole
----	---------	----------------

PCB 12, 8006105, Cross Field

IC1	8340792	150	4011
-----	---------	------------	------

TR3	8320936	051	BC847C	TR5-	8320936	051	BC847C
TR4	8320778	051	BC858C	TR6			
				TR7	8320778	051	BC858C

D1-	8300606	250	LL4448
D5			

C3	4010274	100nF -20+80% 25V	C5	4201268	22μF 20% 35V
C4	4010272	22nF -20+80% 50V			

P1	7210897	Socket 22 pole	P4	7211058	Socket 14 pole
P2	7210997	Socket 20 pole	P5	7211056	Socket 10 pole
P3	7210894	Socket 14 pole	P6	7211057	Socket 12 pole

PCB 14, 8006106, Plug PCB

C1-	4000233	220pF 5% 50V	C9-	4000229	150pF 5% 50V
C4			C12		
C5-	4000234	47pF 5% 50V			
C8					

L3-	8020755	Coil 1μH 20%
L4		

P1	7210904	Socket 16 pole	P7	7210972	Socket 14 pole
P3	7210695	Socket 8 pole			

PCB 19, 8006107, DC/DC Converter

IC1	8340244	108	LM317
IC2	8340547	123	LM337

R1-	5011531	5.9kΩ 1% 1/8W
R2		

C1	4201163	10μF 20% 35V
C2	4000287	220nF -20+80% 25V

P13	7211054	Socket 6 pole
-----	---------	---------------

51	138	141	150	209	250	259	261
262							

Resistors not referred to are standard, see page 3-5

Δ Indicates that static electricity may destroy the component.

* Specially adapted sample.

PCB 20, Transformer left
8006091, type 1601, 230V
8006092, type 1602, 1605 240V
8006093, type 1603, 120V
8006094, type 1604, 100V

D1	8300058	209	1N4148		
D2-	8300466	261	W02G		
D3					
C1-	4130224	100nF 10% 63V		C5	4201149 2200μF 20% 25V
C4					
F1	6609052	Fuse, thermal		F3-	6600067 Fuse 2.5AT 250V
F2	6604008	Fuse 800mA 250V		F4	
	6600097	Fuse 800mA 250V f. type 1603			6600136 Fuse 3.15AT 250V f. type 1603
	7200087	Single contact			7200087 Single contact
				F5	6609052 Fuse, thermal
L1	8022295	Coil 2x0.4mH			
RL1	7600111	Relay 8A 250V			
T1	8013524	Trafo st.-by f. type 1601			
	8013525	Trafo st.-by f. type 1602, 1605			
	8013526	Trafo st.-by f. type 1603			
	8013527	Trafo st.-by f. type 1604			

PCB 21, Transformer right
8006061, type 1601 230V
8006062, type 1602, 1605 240V
8006063, type 1603 120V
8006064, type 1604 100V

P19-	7220897	Plug 2 pole		P21	7211053 Socket 4 pole
P20				P22	7211057 Socket 12 pole
F1	6609052	Fuse, thermal		F4-	6600067 Fuse 2.5AT 250V
F2-	6600080	Fuse 400mA 250V		F5	
F3					6600136 Fuse 3.15AT 250V f. type 1603
	6600138	Fuse 500mA 250V f. type 1603			7200087 Single contact
	7200087	Single contact			
P10	7220897	Plug 2 pole		P12	7211053 Socket 4 pole
P11	7211057	Socket 12 pole			
IC1	8350085	141 STK4171-V		IC100-	8341022 150 4558
IC2	8341231	150 LF347		IC103	
				IC104	8341033 138 LF353

PCB 22, 8006087,
Power Amplifier L or R

TR1	8320816	051 BC846B		TR5	8320811 051 BC857B
TR2	8320753	051 BC856B		TR6-	8320755 051 BC847B
TR3	8320752	051 BC817-40		TR9	
TR4	8321080	051 FMMT491A		TR10	8320811 051 BC857B

TR100- TR101	8320755	051	BC847B	TR500	8320755	051	BC847B
D2- D3 D4 D5- D10	8300482	250	LL4148	D12 D100 D200	8300023 8300482 8300497	209 250 262	1N4002 LL4148 KBU6D
R109	5210017	259	LDR/LED				
R15	5020159	100Ω	10% 0.3W				
C1- C2 C3 C4- C5 C6 C7 C9 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21- C24 C25- C26	4201290 4201172 4200517 4201289 4200688 4200510 4200510 4201173 4201172 4201173 4201174 4200824 4200525 4010170 4200525 4201173 4130233 4130070	3300μF 20% 50V 4.7μF 20% 50V 2.2μF 20% 50V 100μF 20% 16V 47μF 20% 50V 10μF 20% 16V 10μF 20% 16V 10μF 20% 50V 4.7μF 20% 50V 10μF 20% 50V 2.2μF 20% 50V 22μF 20% 50V 22μF 20% 10V 2.2nF 10% 50V 22μF 20% 10V 10μF 20% 50V 220nF 20% 63V 1μF 10% 50V	C27- C29 C30- C33 C100 C101- C104 C105- C106 C107 C108- C110 C111 C112 C113 C114 C115 C116 C117 C118 C300- C301 C500	4000287 4130225 4010170 4010195 4130306 4130240 4130306 4130308 4130265 4000370 4000346 4000370 4000346 4130399 4130234 4010220 4010220	220nF -20+80% 25V 150nF 20% 63V 2.2nF 10% 50V 2.7nF 5% 50V 100nF 10% 63V 47nF 10% 63V 100nF 10% 63V 220nF 10% 63V 10nF 10% 63V 2.2nF 5% 50V 1.2nF 5% 50V 2.2nF 5% 50V 1.2nF 5% 50V 1μF 10% 63V 470nF 10% 63V 100nF 10% 50V 100nF 10% 50V		
P1 P2 P3	7211057 7211055 7220312	Socket 12 pole Socket 8 pole Plug 2 pole	P4 P8	7220313 7220709	Plug 3 pole Plug 2 pole		
R78	5220054	100kΩ	5% 0.2W				

PCB 25, 8006109, NTC

BC847B

IN4002

LL4148

KBUE6D

20+80% 25V

0% 63V

0% 50V

% 50V

0% 63V

% 63V

0% 63V

0% 63V

% 63V

% 50V

% 50V

% 50V

% 63V

0% 63V

0% 50V

0% 50V

pole

pole

Standard Resistors:
Resistors 5% 1/2W

	x1	x10	x100	x1k	x10k	x100k	x1M	x10M
1.0		5011000	5011013	5011028	5011044	5010313	5011069	5011083
1.2	5011406	5011001	5011014	5011030	5011045	5011058	5010421	
1.5	5010727	5011002	5011015	5011031	5011046	5011059	5011071	
1.8	5010857	5010787	5011016	5011033	5011047		5011072	
2.2	5011335	5010708	5010815	5011034	5011048	5011061	5011074	
2.7	5011612	5010803	5011018	5010055	5011049	5011062	5011075	
3.3	5010255	5011007	5011019	5011037		5011063	5010381	
3.9		5010782	5011021	5010700	5011051		5010392	
4.7	5010765	5011009	5011022	5010035	5010036	5011065	5011078	
5.6		5011010	5011023	5011041		5011066	5011079	
6.8	5010874	5011011	5011024	5011042	5010810	5011067	5011080	
8.2		5011012	5011026	5011043	5010038	5011068	5011081	

Resistors 5% 1/4W

	x1	x10	x100	x1k	x10k	x100k	x1M	x10M
1.0	5010592	5010506	5010065	5010040	5010059	5010049	5010054	5010638
1.2		5010595	5010128	5010153	5010046	5010047	5010665	
1.5	5011348	5010468	5010057	5010247	5010053	5010063	5010093	
1.8		5010822	5010362	5010066	5010135	5010072	5010791	
2.2	5010682	5010448	5010092	5010064	5010079	5010120	5010245	
2.7	5010925	5010403	5010000	5010298	5010141	5010083	5010431	
3.3		5010253	5010044	5010076	5010075	5010117	5010848	
3.9	5011377	5010622	5010070	5010069	5010060	5010073	5010714	
4.7	5010888	5010411	5010058	5010048	5010045	5010077	5011513	
5.6	5010706	5010151	5010067	5010041	5010061	5010071	5010658	
6.8	5010904	5010039	5010144	5010052	5010062	5010074		
8.2	5010880	5010056	5010068	5010154	5010091	5010505		

Resistors 5% 1/8W

	x1	x10	x100	x1k	x10k	x100k	x1M	x10M
1.0		5011464	5011357	5010816	5010935	5011440	5011459	5020875
1.2		5011351	5011084	5011442	5011338	5011341	5011175	
1.5		5011463	5011443	5011178	5011364	5011398	5011460	
1.8		5011350	5011361	5011361	5011344	5011468		
2.2	5011032	5011376	5010886	5011353	5010833	5011369	5011342	
2.7		5011471	5011355	5011362	5011366	5011370	5011478	
3.3		5011347	5011337	5010827	5011346	5011371	5011462	
3.9		5011438	5011817	5011157	5011457	5011372	5020876	
4.7	5011363	5011038	5011441	5011363	5010937	5011343	5011611	
5.6		5011412	5011358	5010885	5011166	5011340		
6.8		5011356	5011336	5010839	5011367	5011458		
8.2		5011466	5011354	5011339	5011368	5011373		

Resistors SMD 2% 1/8W
SMD 5% 1/8W

	5%	2%	2%	2%	2%	2%	5%	2%
	x1	x10	x100	x1k	x10k	x100k	x1M	x10M
1.0	5011623	5011647	5011218	5011227	5011241	5011256	5011267	5011730
1.1	5011624	5011648	5011669	5011681	5011689	5011694	5011707	
1.2	5011625	5011649	5011219	5011682	5011490	5011257	5011708	
1.3	5011626	5011650	5011670	5011683	5011242	5011258	5011709	
1.5	5011627	5011651	5011220	5011684	5011243	5011259	5011710	
1.6	5011628	5011652	5011671	5011688	5011690	5011695	5011711	
1.8	5011629	5011653	5011672	5011229	5011244	5011260	5011712	
2.0	5011630	5011654	5011673	5011685	5011691	5011696	5011713	
2.2	5011216	5011655	5011674	5011230	5011245	5011261	5011714	
2.4	5011634	5011656	5011675	5011686	5011246	5011697	5011715	
2.7	5011635	5011657	5011497	5011231	5011247	5011262	5011716	
3.0	5011731	5011658	5011499	5011500	5011692	5011698	5011717	
3.3	5011217	5011659	5011676	5011232	5011248	5011263	5011718	
3.6	5011636	5011660	5011677	5011687	5011249	5011264	5011719	
3.9	5011637	5011661	5011221	5011233	5011491	5011699	5011720	
4.3	5011638	5011662	5011498	5011688	5011492	5011700	5011721	
4.7	5011639	5011269	5011222	5011234	5011250	5011265	5011722	
5.1	5011640	5011663	5011678	5011235	5011493	5011701	5011723	
5.6	5011641	5011664	5011223	5011236	5011251	5011702	5011724	
6.2	5011642	5011665	5011224	5011237	5011693	5011703	5011725	
6.8	5011643	5011666	5011225	5011238	5011252	5011704	5011726	
7.5	5011644	5011667	5011679	5011239	5011253	5011705	5011727	
8.2	5011645	5011270	5011226	5011240	5011254	5011266	5011728	
9.1	5011646	5011668	5011680	5011489	5011255	5011706	5011729	

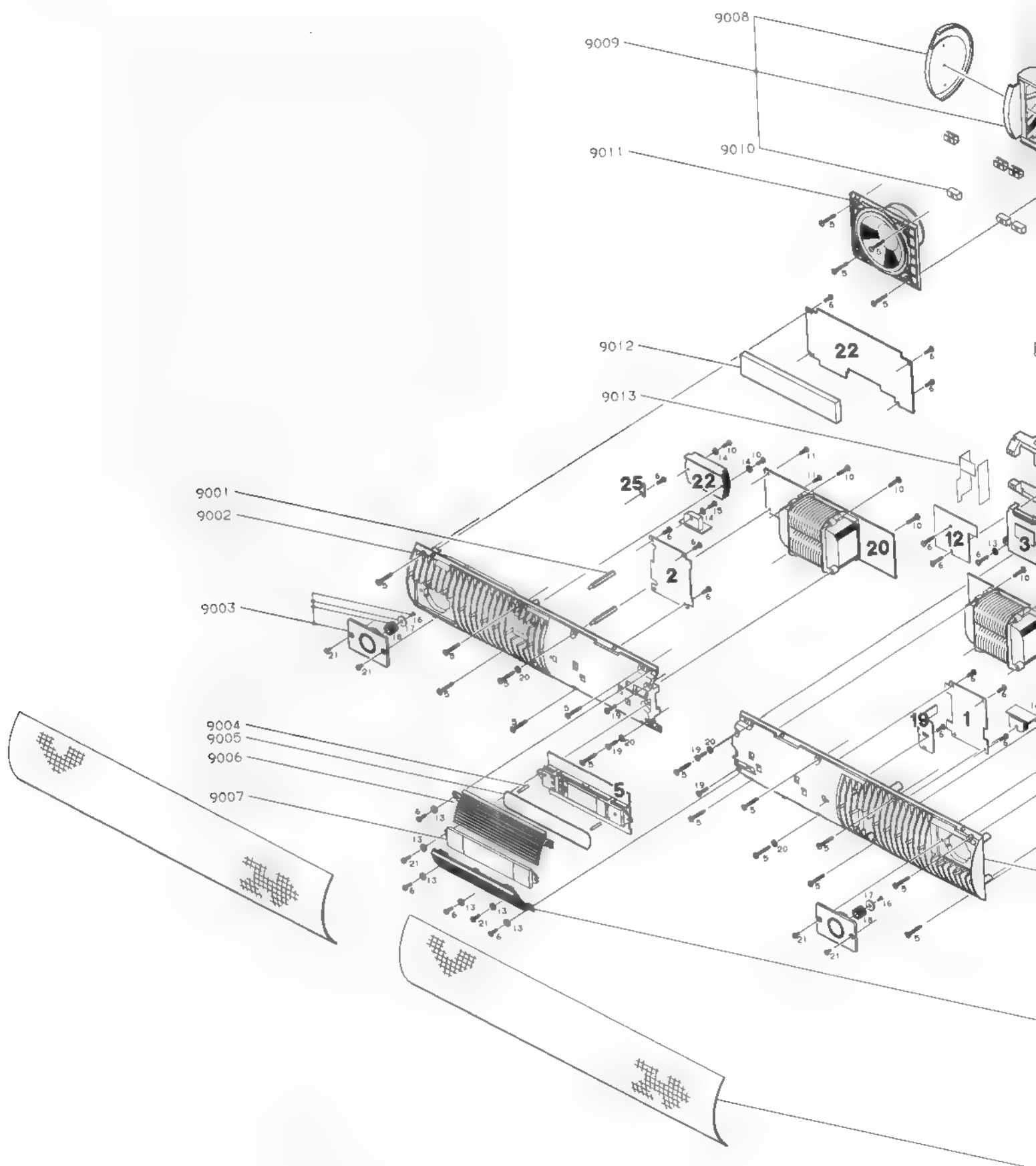
Resistors SMD 5% 1/10W

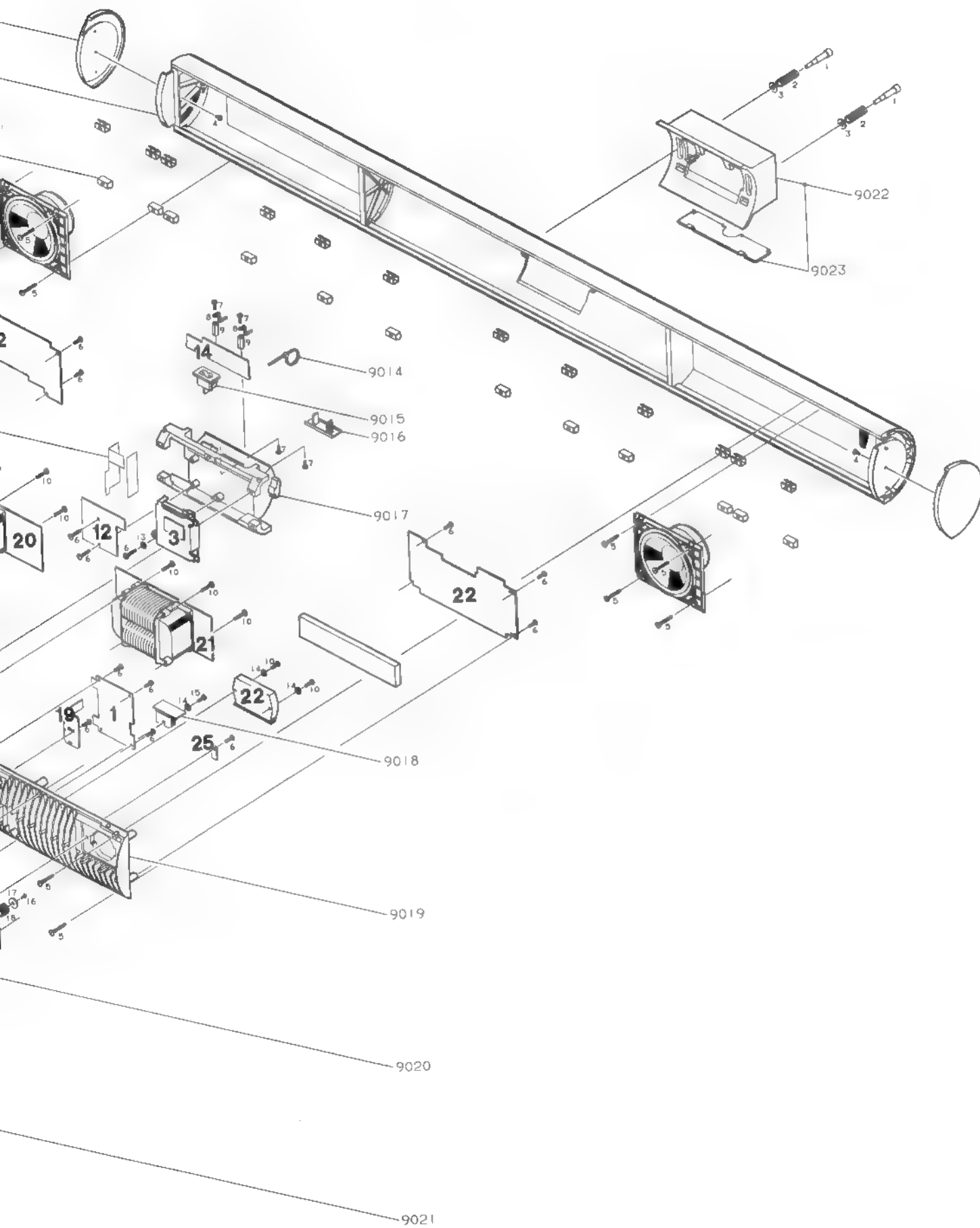
	x1	x10	x100	x1k	x10k	x100k	x1M	x10M
0.0	6000072							
1.0		5011920	5011932	5011944	5011956	5011968	5011980	5012275
1.2	5012326	5011921	5011933	5011945	5011957	5011969	5012267	
1.5		5011922	5011934	5011946	5011958	5011970	5012268	
1.8		5011923	5011935	5011947	5011959	5011971	5011989	
2.2		5011924	5011936	5011948	5011960	5011972	5012220	
2.7		5011925	5011937	5011949	5011961	5011973	5012269	
3.3		5011926	5011938	5011950	5011962	5011974	5012261	
3.9		5011927	5011939	5011951	5011963	5011975	5012270	
4.7		5011928	5011940	5011952	5011964	5011976	5012271	
5.6		5011929	5011941	5011953	5011965	5011977	5012272	
6.8		5011930	5011942	5011954	5011966	5011978	5012273	
8.2		5011931	5011943	5011955	5011967	5011979	5012274	

TR100- TR101	8320755	051	BC847B	TR500	8320755	051	BC847B
D2- D3 D4 D5- D10	8300482	250	LL4148	D12 D100 D200	8300023 8300482 8300497	209 250 262	1N4002 LL4148 KBU6D
R109	5210017	259	LDR/LED				
R15	5020159	100Ω	10% 0.3W				
C1- C2 C3 C4- C5 C6 C7 C9 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21- C24 C25- C26	4201290 4201172 4200517 4201289 4200688 4200510 4200510 4201173 4201172 4201173 4201174 4200824 4200525 4010170 4200525 4201173 4130233 4130070	3300μF 20% 50V 4.7μF 20% 50V 2.2μF 20% 50V 100μF 20% 16V 47μF 20% 50V 10μF 20% 16V 10μF 20% 16V 10μF 20% 50V 4.7μF 20% 50V 10μF 20% 50V 2.2μF 20% 50V 22μF 20% 50V 22μF 20% 10V 2.2nF 10% 50V 2.2nF 10% 50V 10μF 20% 50V 220nF 20% 63V 1μF 10% 50V	C27- C29 C30- C33 C100 C101- C104 C105- C106 C107 C108- C110 C111 C112 C113 C114 C115 C116 C117 C118 C300- C301 C500	4000287 4130225 4010170 4010195 4130306 4130240 4130306 4130308 4130265 4000370 4000346 4000370 4000346 4130399 4130234 4010220 4010220	220nF -20+80% 25V 150nF 20% 63V 2.2nF 10% 50V 2.7nF 5% 50V 100nF 10% 63V 47nF 10% 63V 100nF 10% 63V 220nF 10% 63V 10nF 10% 63V 2.2nF 5% 50V 1.2nF 5% 50V 2.2nF 5% 50V 1.2nF 5% 50V 1μF 10% 63V 470nF 10% 63V 100nF 10% 50V 100nF 10% 50V		
P1 P2 P3	7211057 7211055 7220312	Socket 12 pole Socket 8 pole Plug 2 pole	P4 P8	7220313 7220709	Plug 3 pole Plug 2 pole		
R78	5220054	100kΩ	5% 0.2W				

PCB 25, 8006109, NTC

EXPL VIEW





LIST OF MECHANICAL PARTS

01modul 8006068 LF Supply and Control

02modul 8006073 Switch Mode Power Supply

03modul 8006069 Microcomputer

05modul 8006104 Display, Keyboard and IR Receiver

12modul 8006105 Cross Field

14modul 8006106 Plug PCB

19modul 8006107 DC/DC Converter

2622423 Insulating piece

2364066 Rivet

2816195 Spring clips

20modul 8006091 Transformer left, type 1601

8006092 Transformer left, type 1602, 1605

8006093 Transformer left, type 1603

8006094 Transformer left, type 1604

21modul 8006061 Transformer right, type 1601

8006062 Transformer right, type 1602, 1605

8006063 Transformer right, type 1603

8006064 Transformer right, type 1604

22modul 8006087 Power Amplifier

6200044 Band cable

25modul 8006109 NTC PCB

9001 2576302 Distance bolt

9002 3114422 Chassis

9003 8480243 Tweeter

9004 3907064 Rubber

9005 3950053 Rubber belt

9006 3451207 Front piece

9007 3169016 Operating panel

9008 3458854 Cap

9009 3430606 Cabinet

9010 2816214 Clips

9011 8480259 Woofer

9012 3332055 Damper

9013 3170300 Insulating piece

9014 3152214 Wire holder

9015 6276907 Mains socket

9016 3164935 Cover

9017 3114406 Chassis f. sockets

9018 8006108 Rectifier PCB

9019 3114422 Chassis

9020 3451207 Front piece

9021 3451226 Cloth front

9022 3031382 Wall fittings

9023 3164920 Cover f. wall fittings

Survey of screws and washers

1 2046032 Allen screw, 6x32.7

2 2816267 Spring

3 2622487 Washer

4 2013176 Screw, 3x6

5 2015154 Screw, 3.5x25

6 2013188 Screw, 3x8

7 2036082 Screw, 2.5x8

8 7530119 Solder tag

9 2640054 Washer

10 2011056 Screw, 3x16

11 2038111 Screw, 3x8

13 2622041 Washer

14 2624013 Washer

15 2013177 Screw, 3x13

16 2038103 Screw, 3x12

17 2622247 Washer, 3.2x10.2x1mm

18 3358305 Heat sink

19 2015167 Screw, 3.5x14

20 2625039 Lock washer

21 2011055 Screw, 3x10

Accessories

- 3031235 Wall bracket
- 3390481 Bag with parts f. Wall bracket
- 3901162 Wall Plate
- 3390468 Bag with parts f. Wall Plate
- 2560276 Cable cover, 10 pieces
- 1160611 Table stand
- 3390410 Bag with parts f. table stand
- 3947310 Rubber foot f. table stand
- 3392426 Packing set f. table stand

Parts not shown

- 3947547 Foam, 3x19mm x 10m.
- 3947350 Foam, 3x7mm x 10m.
- 3947548 Foam, 6x7mm x 10m.
- 3984215 Heat sink compound
- 3040016 Allen key, 4mm.
- 6270621 MCL cable, 10 m
- 6100273 Mainscable f. type 1601, 1602
- 6100307 Mainscable f. type 1603
- 6100247 Mainscable f. type 1604
- 6100248 Mainscable f. type 1605
- 7505017 Terminal strip
- 3152431 Connection box f. MCL
- 3540015 Mounting instruction f. connection box (MCL)
- 3392368 Outer carton
- 3397921 Foam packing
- 3946038 Foam foil

Survey of wire bundles

- 6276906 Wire bundle, left:
 - 2P23 - 20P21
 - 2P24 - 12P4
 - 2P25 - 22P2
 - 20P22 - 22P1
 - 22P3 - Tweeter
 - 22P4 - Woofer
- 6276908 Wire bundle, right:
 - 1GND - Chassis
 - 1P14 - 19P13
 - 1P15 - 21P5
 - 1P16 - 22P2
 - 1P17 - 12P5
 - 1P18 - 12P6
 - 22P3 - Tweeter
 - 22P4 - Woofer
- 6200239 Varnished tubing PCB set
- 6276907 Mains socket wire bundle

Owners manual

- 3501530 Danish
- 3501531 Swedish
- 3501532 Finnish
- 3501533 English
- 3501534 German
- 3501535 Dutch
- 3501536 French
- 3501537 Italien
- 3501538 Spanish

Set-up guide

- 3500389 Danish
- 3500390 Swedish
- 3500391 Finnish
- 3500392 English
- 3500393 German
- 3500394 Dutch
- 3500395 French
- 3500396 Italien
- 3500397 Spanish

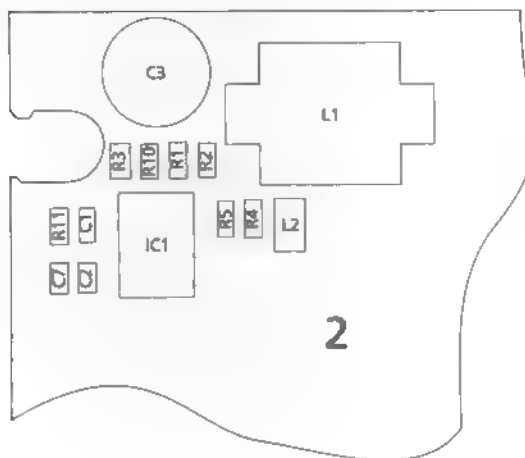
ADJUSTMENT

Replacement of PCB3, Microcomputer

5V

When replacing IC1, LM3578, on PCB2, Switch-Mode Power Supply, the supply voltage may have to be adjusted to $5V \pm 0.25V$ by means of R2 and R10:

- If 5V is above level, install R2 (R1//R2).
- If 5V is below level, install R10 (R3//R10).



SPEAKER

Adjustment of bass/treble sound level

To be carried out only when replacing a speaker unit or PCB3, Microcomputer.

TEST MODE 01

TEST MODE 01

This test mode permits manual adjustment of speaker bass and treble levels and can only be executed from stand-by with a Beolink 1000 terminal.

- Press MENU 0 1 PLAY.
The display reads SPK.CAL. to indicate that the product is ready for speaker calibration.
- Press PLAY.
The display shows the present adjustment:
'X X X X' = left bass (LB).
'X X X X' = left treble (LT).
'X X X X' = right treble (RT).
'X X X X' = right bass (RB).

The value that can be changed is flashing. Press >> or << to change unit of adjustment, and change the value by pressing the digit keys. When all four speakers have the desired encoding, press STORE, and abandon test mode by pressing STOP.

Replacement of PCB3, Microcomputer

The bass and treble levels of the speakers are stored electronically in the Microcomputer (PCB3). When replacing PCB3, the original bass and treble level values must be restored:

- Install the new Microcomputer (see section 6, Dismantling, if necessary).
- In TEST MODE 01, enter the values printed on the label in the socket well:
LT (left treble) : X LB (left bass) : X
RT (right treble) : X RB (right bass) : X
- Press STORE STORE when all four speakers have been encoded as desired.

Replacement of a speaker unit

A rated value in dB is printed on the back of the new speaker unit. This value is used for adjusting the sound level, which is done in TEST MODE 01:

- Note the value on the back of the new speaker unit
- Replace the old speaker unit.
- Execute the point TEST MODE 01.
- The rated value printed on the back of the speaker may be either positive or negative:

Positive:

If the rated value printed on the back of the speaker is positive, the unit in question must be damped by X number of steps. Press >> to select speaker, if necessary (the active speaker is flashing), and enter a new digit (see table).

Negative:

If the rated value printed on the back of the speaker is negative, the other three units must be damped by X number of steps. Press >> to select the three speakers in question, and enter new digits (see table).

Rated value in dB	X steps down
0.00 +/-0.25 +/-0.50	0 steps down
+/-0.75 +/-1.00 +/-1.25 +/-1.50 +/-1.75	1 step down
+/-2.00	2 steps down

- Press STORE when all four speakers have the desired encoding.
- Abandon test mode by pressing STOP.

REPAIR TIPS

Beolab LCS 9000 can be brought into TEST MODE from stand-by with a Beolink 1000 terminal, giving access to the following functions:

TEST MODE 00

Display of: Software version number and time of operation in Audio mode, Video mode and stand-by.

- Press MENU 0 0 PLAY.
The display reads: **SW X.Y**, which is the software version number.
- Press ▲.
The display reads: **A: XXXXXX**, which is the Audio mode operating time in hours x 10.
- Press ▲.
The display reads: **B: XXXXXX**, which is the Video mode operating time in hours x 10.
- Press ▲.
The display reads: **C: XXXXXX**, which is the stand-by operating time in hours x 10.
Press ▲ or ▼ to scroll in the scroll menu, and abandon test mode by pressing STOP.

TEST MODE 01

Electronic adjustment of the bass and treble levels of the speakers. See section 5, Adjustment.

SERVICE SET-UP

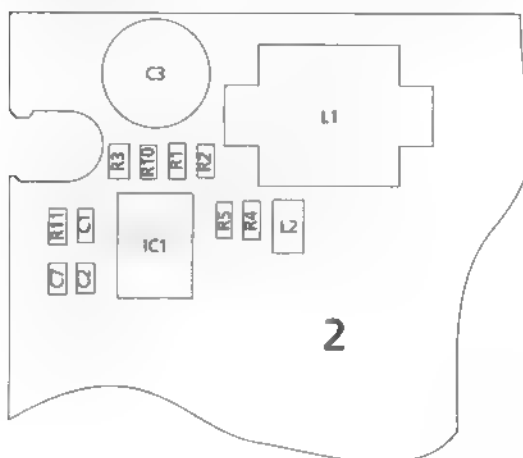
Beolab Local Control System 9000 is connected to a Beomaster (BM5500 or later models) as an ordinary Beolink installation. As regards option programming, see the Brief Operation Guide.

EINSTELLUNGEN

5V

Nach dem Austausch des IC1 LM3578 auf der Platine PCB2 Switch Mode Power Supply kann es erforderlich sein, die Versorgung mit Hilfe der Widerstände R2 und R10 auf $5V \pm 0,25V$ einzustellen:

- Liegt die 5V-Versorgung über dem Niveau, so ist R2 (R1//R2) zu montieren.
- Liegt die 5V-Versorgung unter dem Niveau, so ist R10 (R3//R10) zu montieren.



LAUTSPRECHER

Einstellung des Tiefen/Höhen-Pegels.

Diese Einstellung ist nur nach Austausch einer Lautsprechereinheit oder der Platine PCB3 Mikrocomputer durchzuführen.

TESTMODE 1

TESTMODE 1

Dieser Testmodus bietet die Möglichkeit, den Tief- und Hochtonpegel der Lautsprecher elektronisch (und manuell) einzustellen; die Einstellung kann nur aus der Stellung 'Stand-by' mit einem Beolink 1000 vorgenommen werden:

- Tastenbetätigung: MENU 0 1 PLAY.
Displayanzeige: SPK.CAL., als Zeichen dafür, daß das Gerät jetzt für die Lautsprecherkalibrierung bereit ist.
- Tastenbetätigung: PLAY.
Im Display erscheint die aktuelle Einstellung:
'X X X X' = Tiefton links (LB).
'X X X X' = Hochton links (LT).
'X X X X' = Hochton rechts (RT).
'X X X X' = Tiefton rechts (RB).

Der Wert, der geändert werden kann, blinkt. Mit >> oder << wird zwischen den Lautsprechereinheiten geschaltet, und der Wert wird durch Zifferneingabe geändert. Wenn alle vier Lautsprechereinheiten die gewünschte Codierung haben, wird STORE gedrückt. Zum Verlassen des Testmodus ist die Taste STOP zu drücken.

**Austausch der Platine PCB3
Mikrocomputer**

Der Tief- und Hochtonpegel der Lautsprecher wird im Mikrocomputer (PCB3) elektronisch gespeichert. Nach Austausch dieser Platine (PCB3) sind die ursprünglichen Werte für den Tief- und Hochtonpegel wieder zu speichern:

- Den neuen Mikrocomputer einbauen (siehe hierzu evtl. Abschnitt 6 Zerlegung).
- Im TESTMODE 01 werden diejenigen Werte eingegeben, die aus dem Klebezettel (Label) im Anschlußbuchsenbrunnen hervorgehen:
 LT (left treble) : X LB (left bass) : X
 RT (right treble): X RB (right bass) : X
- Wenn alle vier Lautsprechereinheiten die gewünschte Codierung haben, ist die Tasten STORE STORE zu drücken.

**Austausch einer
Lautsprechereinheit**

Die neue Lautsprechereinheit ist rückseitig mit einem aufgedruckten dB-Meßwert versehen. Dieser Wert ist für die Einstellung des Schallpegels zu benutzen. Diese Einstellung erfolgt im Modus 'TESTMODE 01':

- Den rückseitig angeführten Wert der neuen Lautsprechereinheit notieren und die Einheit austauschen.
- Den Punkt 'TESTMODE 01' durchführen.
- Der rückseitig angeführte Wert der Lautsprechereinheit kann entweder positiv oder negativ sein.

Pos.:

Ist der rückseitig aufgedruckte Wert der Lautsprechereinheit positiv, so ist die betreffende Einheit um X Anzahl Schritte zu dämpfen. Ggf. den aktuellen Lautsprecher mit >> wählen (der aktive Lautsprecher blinkt), und den neuen Ziffernwert eingeben (siehe Tabelle).

Neg.:

Ist der rückseitig aufgedruckte Wert der Lautsprechereinheit negativ, so sind die drei übrigen Einheiten um X Anzahl Schritte zu dämpfen. Die drei aktuellen Lautsprecher mit >> wählen, und neue Ziffernwerte eingeben (siehe Tabelle).

Rated value in dB	X steps down
0,00 ±0,25 ±0,50	0 steps down
±0,75 ±1,00 ±1,25 ±1,50 ±1,75	1 step down
±2,00	2 steps down

- Wenn alle vier Lautsprechereinheiten die gewünschte Codierung haben, ist die Taste STORE zu drücken.
- Zum Verlassen des Testmodus die Taste STOP drücken.

REPARATUR-TIPS

Beolab LCS 9000 läßt sich mit einem Beolink 1000 aus der Stellung 'Stand-by' in den Modus 'TESTMODE' bringen, wodurch die folgenden Funktionen zugänglich werden:

TESTMODE 00

- Auslesen von: Nummer der Software-Version sowie Betriebsdauer in 'Audiomode', 'Videomode' und 'Stand-by'.
 - Tastenbetätigung: MENU 0 0 PLAY.
Displayanzeige: **SW X.Y**, was der Nummer der Software-Version entspricht.
 - Tastenbetätigung: ▲.
Displayanzeige: **A: XXXXX**, was der Betriebsdauer im Modus 'Audiomode' in Stunden x 10 entspricht.
 - Tastenbetätigung: ▲.
Displayanzeige: **B: XXXXX**, was der Betriebsdauer im Modus 'Videomode' in Stunden x 10 entspricht.
 - Tastenbetätigung: ▲.
Displayanzeige: **C: XXXXX**, was der Betriebsdauer im Modus 'Stand-by' in Stunden x 10 entspricht. Mit der Taste ▲ oder ▼ kann im Rollmenu geschaltet werden. Zum Verlassen des Testmodus die Taste STOP drücken.

TESTMODE 01

Elektronische Einstellung des Tief- und Hochtonpegels der Lautsprecher. Siehe hierzu Abschnitt 5 Einstellungen.

SERVICE SET-UP

Das Beolab Local Control System 9000 wird an einen Beomaster (BM5500 oder später) als eine normale Beolink-Installation angeschlossen. Bezüglich der Options-Programmierung sei auf die 'Brief Operation Guide' verwiesen.

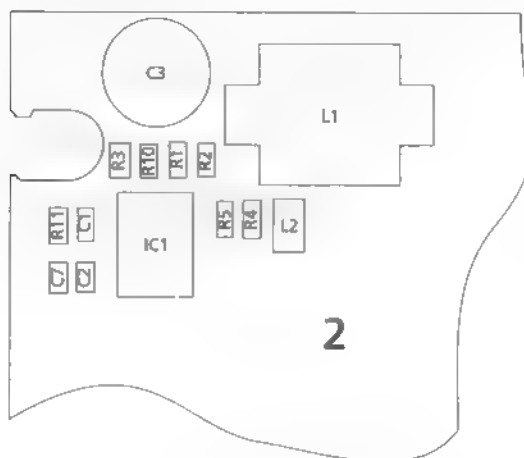
REGLAGE

5 V

Il peut s'avérer nécessaire de mettre en oeuvre R2 et R10 pour régler l'alimentation sur $5\text{ V} \pm 0,25\text{ V}$ en remplaçant le composant IC1 LM3578 de la carte PCB2 "Switch Mode Power Supply".

- Monter R2 (R1//R2) si l'alimentation est supérieure à 5 V.

- Monter R10 (R3//R10) si l'alimentation est inférieure à 5 V.



HAUT-PARLEURS

Réglage du niveau sonore des graves et des aigus

Ne procéder à ce réglage qu'en cas de remplacement d'un haut-parleur ou de la carte PCB3 "Microcomputer".

MODE D'ESSAI 01

MODE D'ESSAI 01

Ce mode d'essai permet de régler manuellement le niveau des graves et des aigus des HP. Il ne peut s'effectuer qu'en mode veille à l'aide d'un Beolink 1000.

- Appuyer sur MENU 0 1 PLAY.
L'afficheur indique SPK.CAL, matérialisant ainsi que l'appareil est prêt à calibrer le haut-parleur.
- Appuyer sur PLAY.
L'afficheur indique le réglage instantané :
 "X X X X" = grave gauche (LB)
 "X X X X" = aigu gauche (LT)
 "X X X X" = aigu droit (RT)
 "X X X X" = grave droit (RB)

La valeur susceptible d'être modifiée clignote. Les touches >> et << permettent de sauter d'un HP à l'autre. Les valeurs se changent en tapant les chiffres correspondants. Après avoir affecté les valeurs souhaitées aux quatre haut-parleurs, appuyer sur STORE. Appuyer sur STOP pour quitter le mode d'essai.

**Remplacement de la carte PCB3
"Microcomputer"**

Le microcalculateur (carte PCB3) mémorise électroniquement le niveau des graves et des aigus des haut-parleurs. Il convient de remémorer les valeurs initiales des graves et des aigus si la carte PCB3 est remplacée.

- Monter le microcalculateur neuf (se reporter le cas échéant au paragraphe 6 "désassemblage").
- En MODE D'ESSAI 01, taper les valeurs inscrites sur l'étiquette apposée sur le puits accueillant la fiche :
 LT (aigu gauche) : X LB (grave gauche) : X
 RT (aigu droit) : X RB (grave droit) : X
- Appuyer sur STORE STORE quand tous les quatre haut-parleurs présentent les valeurs souhaitées.

Remplacement d'un haut-parleur

Une valeur calibrée exprimée en dB est inscrite sur la face arrière du haut-parleur neuf.

Cette valeur sert à régler le niveau sonore. Cette opération s'effectue en MODE D'ESSAI 01 :

- Noter la valeur figurant sur la face arrière du haut-parleur neuf.
- Remplacer le haut-parleur.
- Procéder au MODE D'ESSAI 01.
- La valeur inscrite sur le verso du haut-parleur peut être positive ou négative :

Valeur positive :

Si une valeur positive figure sur la face arrière du haut-parleur, affaiblir le HP correspondant de X pas. Le cas échéant, sélectionner le haut-parleur à l'aide de la touche >> (le haut-parleur actif clignote) et entrer la nouvelle valeur (voir tableau).

Valeur négative :

Si une valeur négative figure sur la face arrière du haut-parleur, affaiblir les trois autres haut-parleurs de X pas. Le cas échéant, sélectionner les trois haut-parleurs à l'aide de la touche >> et entrer les nouvelles valeurs (voir tableau).

Rated value in dB	X steps down
0,00 ±0,25 ±0,50	0 steps down
±0,75 ±1,00 ±1,25 ±1,50 ±1,75	1 step down
±2,00	2 steps down

- Appuyer sur STORE quand tous les quatre haut-parleurs présentent les valeurs souhaitées.
- Quitter le mode d'essai en appuyant sur STOP.

CONSEILS DE REPARATION

Un Beolink 1000 permet d'amener un Beolab LCS 9000 en veille en MODE D'ESSAI. Cette opération ouvre la porte aux fonctions suivantes :

MODE D'ESSAI 00

Lecture de la version du logiciel et de la durée de fonctionnement en mode audio, vidéo et veille.

- Appuyer sur **MENU 0 0 PLAY**.
L'afficheur indique : **SW X. Y**. Cette information correspond à la version du logiciel.
- Appuyer sur **▲**.
L'afficheur indique : **A: XXXXX**. Pour connaître le temps de fonctionnement en mode audio exprimé en heures, multiplier la valeur affichée par 10.
- Appuyer sur **▲**.
L'afficheur indique : **B: XXXXX**. Pour connaître le temps de fonctionnement en mode vidéo exprimé en heures, multiplier la valeur affichée par 10.
- Appuyer sur **▲**.
L'afficheur indique : **C: XXXXX**. Pour connaître le temps de fonctionnement en mode veille exprimé en heures, multiplier la valeur affichée par 10.
Les touches **▲** et **▼** permettent de dérouler le menu. Quitter le mode d'essai en appuyant sur **STOP**.

MODE D'ESSAI 01

Régulation électronique des graves et des aigus des haut-parleurs. Se reporter au paragraphe 5 "Réglage".

CONFIGURATION DE MAINTENANCE

Raccorder le Beolab Local Control System 9000 à un Beomaster (BM5500 ou version plus récente) comme dans le cas d'une installation traditionnelle mettant en oeuvre un Beolink. Pour l'option "Programmation", se reporter au Brief Operation Guide.

DISMANTLING**Front fabric frame**

- Push the front fabric frame to the side and lift it off.

When both front fabric frames have been removed, PCB5, Display, Keyboard & IR receiver, PCB3, Microcomputer, and PCB12, Cross field, are accessible:

- Remove the display glass (two screws) and the two plastic covers (four screws). PCB5 can now be tilted out into service position, thereby also providing access to PCB3 and PCB12.

ZERLEGUNG**Frontstoffrahmen**

- Den Frontstoffrahmen zur Seite hin verschieben und abheben.

Wenn beide Frontstoffrahmen entfernt worden sind, sind PCB5 Display, Keyboard & IR Receiver, PCB3 Mikrocomputer sowie PCB12 Cross Field zugänglich:

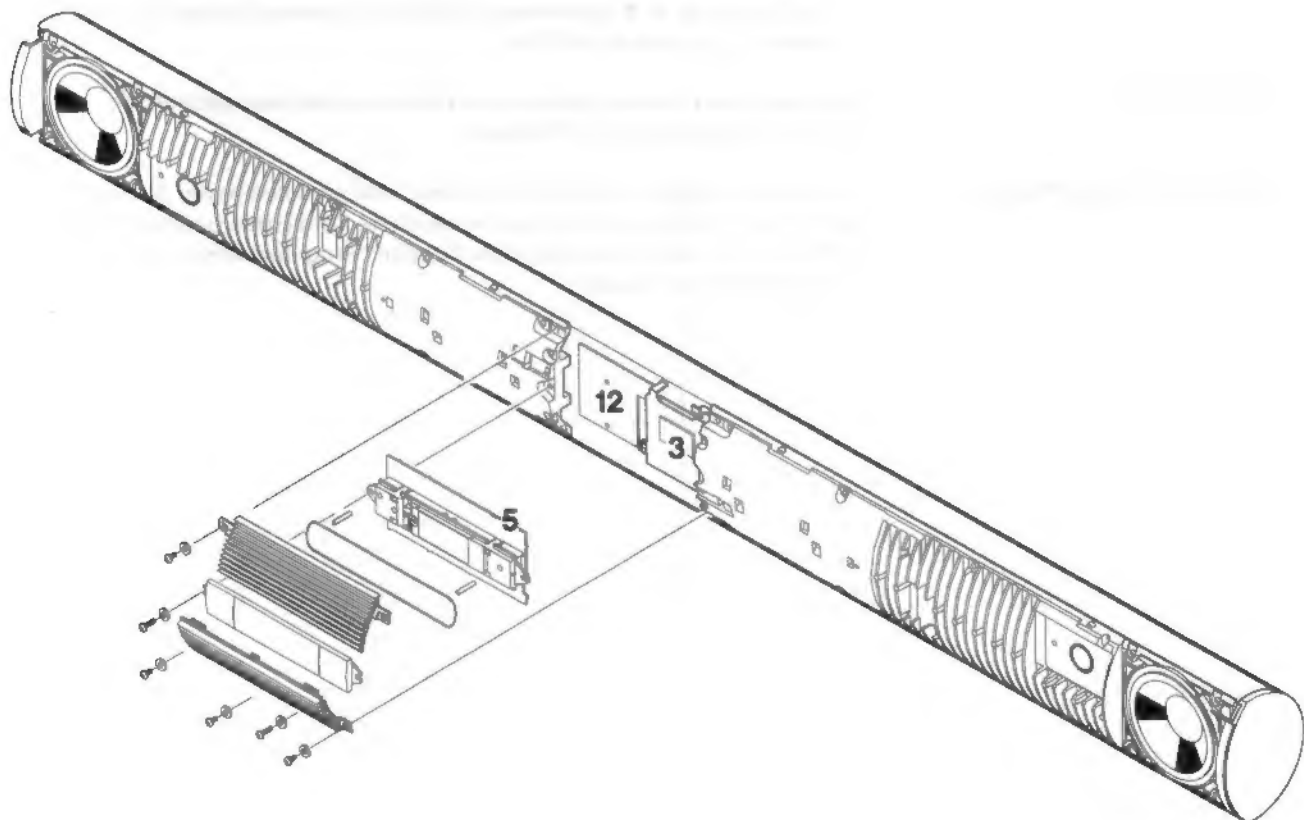
- Das Displayglas (zwei Schrauben) sowie die beiden Kunststoffabdeckungen (vier Schrauben) entfernen. PCB5 kann jetzt in Serviceposition gekippt werden, wodurch dann PCB3 und PCB12 zugänglich werden.

DESASSEMBLAGE**Panneau frontal en textile**

- Repousser le panneau frontal sur le côté et le soulever.

Il est possible d'accéder aux cartes PCB5 "Display, Keyboard & IR receiver", PCB3 "Microcomputer" et PCB12 "Cross field" après avoir déposé les deux panneaux frontaux en textile.

- Enlever la verrerie de l'afficheur (deux vis) et les deux bandeaux plastiques (quatre vis). Il est alors possible de pivoter la carte PCB5 pour l'amener en position de maintenance. Une fois cette opération effectuée, les cartes PCB3 et PCB12 sont également accessibles.



Service position

Important!

The display glass and cabinet must be protected against scratches by placing them on a soft base.

- Remove the sixteen screws, A, behind the front fabric frames.

Serviceposition

Wichtiger Hinweis!

Das Displayglas und das Gehäuse sind vor Kratzern zu schützen. Hierzu sind diese Teile auf einer weichen Unterlage anzubringen.

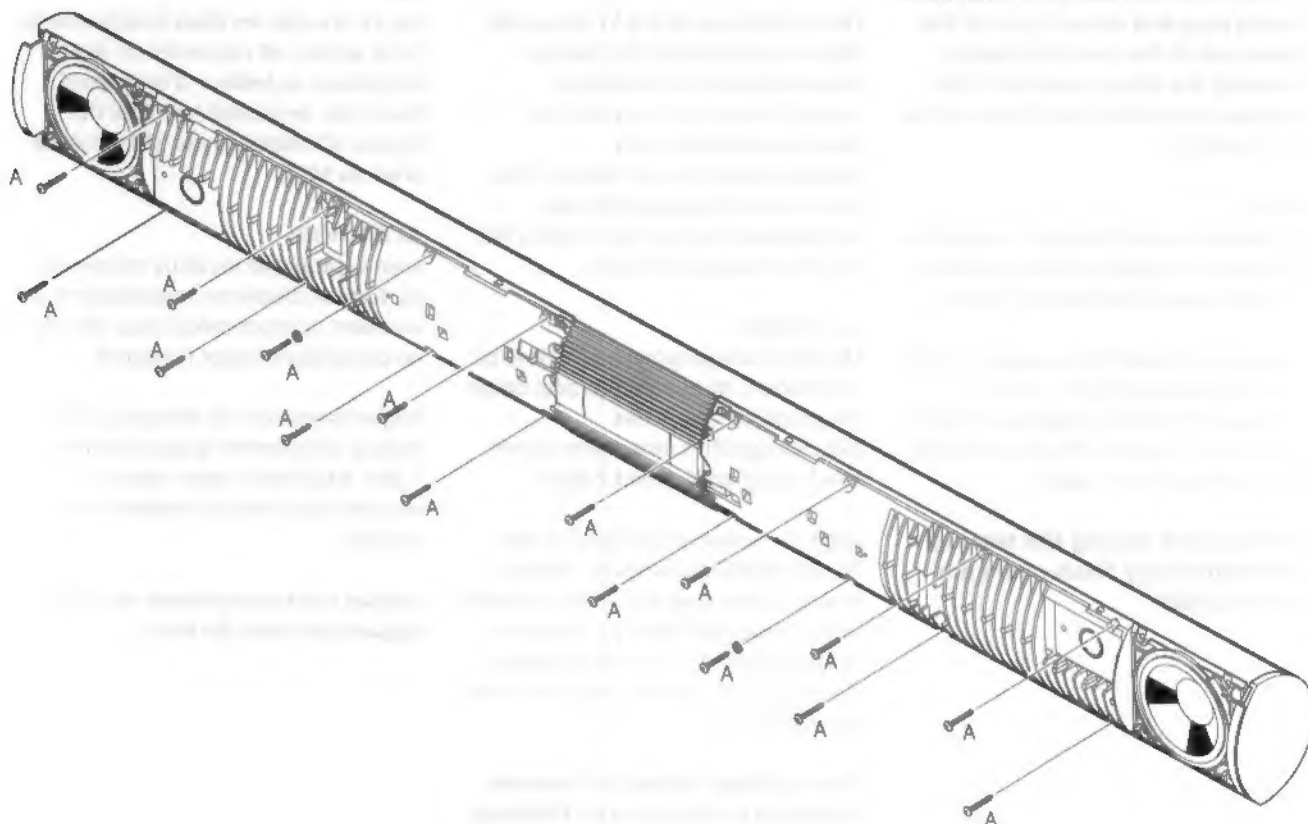
- Die sechzehn Schrauben A hinter den Frontstoffrahmen entfernen.

Position de maintenance

Attention !

Il convient de placer la verrerie de l'afficheur et le boîtier sur un support souple pour éviter toute rayure.

- Enlever les seize vis A masquées par les panneaux frontaux en textile.



- Place the front face down.
- Remove the socket well by first removing the two Allen screws.
- Lift the cabinet up and off carefully. Place the cabinet parallel to the electronics block, and remove the two woofer plugs (22P4) if necessary.

When assembling the product, lower the electronics block carefully down into the cabinet. Place the woofer leads at the centre of the cabinet so that they will not rattle against the cabinet sides.

- Das Gerät mit der Front nach unten anbringen.
- Den Anschlußbuchsenbrunnen durch Entfernen der beiden Innensechskantschrauben ausbauen.
- Das Gehäuse vorsichtig anheben und abnehmen. Das Gehäuse parallel zum Elektronikblock anbringen und evtl. die beiden Steckverbindungen (22P4) für die Tieftonlautsprecher abmontieren.
- Beim Zusammenbau des Gerätes den Elektronikblock vorsichtig in das Gehäuse absenken. Die Leitungen für die Tieftonlautsprecher mitten im Gehäuse anordnen, damit sie die Gehäuseseiten nicht 'klirrend' berühren.

- Retourner le panneau frontal.
- Déposer le puits accueillant la fiche après avoir dévissé les deux vis à six pans creux.
- Enlever le boîtier en le soulevant avec précaution. Placer le boîtier parallèlement au bloc électronique et débrancher le cas échéant les deux fiches (22P4) reliées aux haut-parleurs de grave.
- En remontant l'appareil, descendre prudemment le bloc électronique dans le boîtier. Placer les câbles des haut-parleurs de grave au milieu du boîtier pour éviter qu'ils ne cognent contre les parois du boîtier.

INSULATION TEST

Each set **must** be insulation tested after dismantling. The test is to be performed when the set has been re-assembled and is ready for delivery to the customer.

Make the insulation test as follows: Short-circuit the two plug pins of the mains plug and connect one of the terminals of the insulation tester. Connect the other terminal of the insulation tester to the chassis of the MCL socket.

N.B.!

To avoid ruining the set, it is essential that both insulator test terminals are in really good mechanical contact.

Now turn slowly the voltage control of the insulation tester until a voltage of 1.3kV is obtained. Hold it there for 1 second, then turn slowly the voltage down again.

At no point during the testing procedure any flash-overs are permissible.

ISOLATIONSPRÜFUNG

Nach einer Zerlegung ist bei jedem Gerät eine Isolationsprüfung vorzunehmen. Die Prüfung wird dann ausgeführt, wenn das Gerät wieder vollständig zusammengebaut und zur Auslieferung an den Kunden bereit ist.

Die Isolationsprüfung in folgender Weise durchführen: Die beiden Steckerstifte am Netzstecker kurzschliessen und an eine der Anschlussklemmen des Isolationsprüfers anschliessen. Die andere Anschlussklemme des Isolationsprüfers an den Chassis der MCL Buchse anschliessen.

ACHTUNG!

Um Beschädigungen des Gerätes zu vermeiden, ist es wichtig, dass beide Anschlussklemmen des Isolationsprüfers einen sehr guten mechanischen Kontakt haben.

Jetzt die Spannungsregelung des Isolationsprüfers langsam drehen, bis eine Spannung von 1.3kV erreicht wird. Diese Einstellung 1 Sekunde aufrechterhalten, und anschliessend die Spannung wieder langsam nach unten regeln.

Überschläge dürfen zu keinem Zeitpunkt während der Prüfung vorkommen.

TEST D'ISOLEMENT

Il convient de tester l'isolement de tous les appareils après les avoir désassemblés. Le test est effectué après réassemblage de l'appareil et avant la livraison imminente au client.

Procéder au test d'isolement comme suit:

Court-circuiter les deux broches de la fiche secteur et raccorder un des terminaux au testeur d'isolement. Raccorder le second terminal du testeur d'isolement aux châssis de la prise du MCL.

ATTENTION!

Il est capital que les deux terminaux du testeur d'isolement présentent un excellent contact mécanique afin de ne pas endommager l'appareil.

Régler lentement la tension sur le testeur d'isolement jusqu'à arriver à 1.3kV. Maintenir cette valeur 1 seconde, puis réduire lentement la tension.

Aucun contournement ne doit apparaître lors du test.